# THE physical therapy REVIEW

What Do the Mature Years Offer? — ADLER

Financial Planning for the Later Years — RANDALL

The Function of the Physical Therapist in Program Planning for the Adolescent Patient — NORRIS

Case Report — WINTERS

Suggestions from the Field

HICKOK and CHEVILLON
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***ANNUAL INDEX***

**Volume 37, Number 12** **December 1957**

PUBLISHED MONTHLY BY
AMERICAN PHYSICAL THERAPY ASSOCIATION

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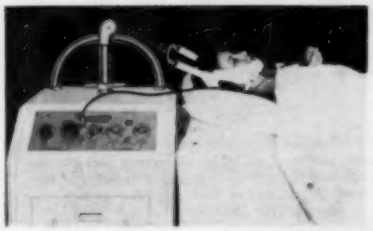

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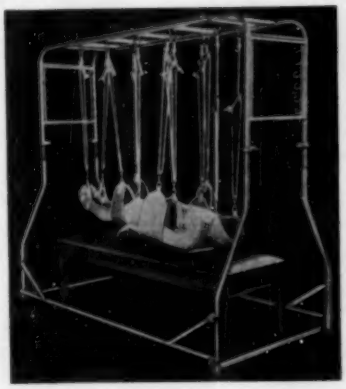

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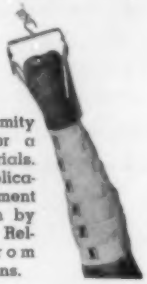

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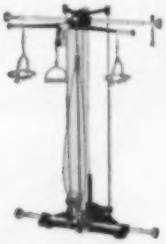

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Submit the original *manuscript* and one carbon copy (keep one carbon copy for your files). All written material should be typed, double-spaced with minimum margins of 1 inch on 8½ x 11 inch opaque white paper. Legends for illustrations, tables, references, and acknowledgments should be placed each on a separate sheet. When citing another author's work, a superscript numeral must appear in the body of the manuscript. The *references* must be accurate and numbered in the order in which they appear in the text. Include the name of each author, title of the article, name of periodical, volume number, inclusive pages, and date.

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# Physical Therapy Review

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Vol. 37 No. 12


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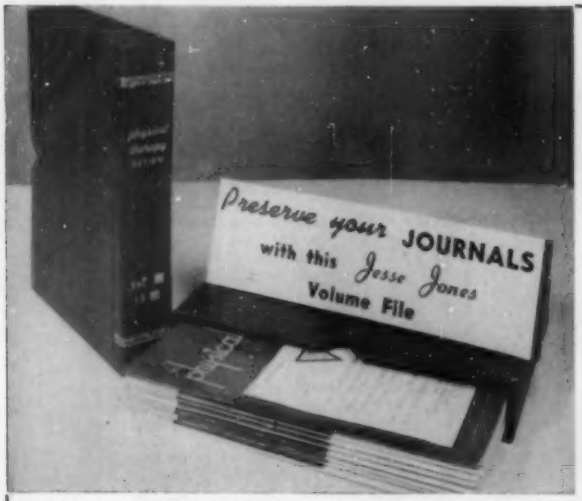


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| **Technics of Neuromuscular Reeducation** | California Rehabilitation Center<br>Vallejo, California | Margaret Knott Chief P. T.<br>Calif. Rehab. Center<br>Vallejo, Calif. | January 1<br>April 1 |
| **Advanced Course in Physical Rehabilitation Methods** | NYU-Bellevue Med. Cen. and NYU Sch. of Education | Mrs. Edith Lawton, Dir.<br>Courses for Physical Therapists<br>Institute of P. M. & R.<br>400 E. 34th Street<br>New York City, N. Y. | Feb. 3 — 28, 1958<br>Apr. 28 — May 23, 1958 |
| **Physical Therapy in the Care of Neuromuscular Disease** | Georgia Warm Springs Foundation<br>Warm Springs, Georgia | Robert L. Bennett, M.D.<br>Medical Director<br>Ga. Warm Springs Found.<br>Warm Springs, Georgia | January<br>April<br>October |
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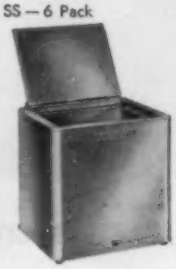

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# The Physical Therapy Review

Official Publication of The American Physical Therapy Association


## *What Do the Mature Years Offer?**


Rabbi Morris Adler


The rather widespread discussion about our senior citizens, the aging, and the organization of golden age groups in many of our agencies, indicates a great awareness of a problem that has achieved special prominence in our time. In a sense the problem is a tribute to our advance in the realm of medicine and our success in conquering ailments that heretofore claimed great numbers. The life expectancy of the average man and woman has been greatly prolonged with the consequent result that a greater proportion of the population now belongs to the older group. Whereas in 1850 2.6 per cent of the population consisted of people who were 65 years of age or over, a century later there are close to 8 per cent who fall in that category. It has been estimated that in 1990 more than 13 per cent of our citizens will be in the seventh decade of their life. We are, therefore, confronted by the need to make definite provisions for people who have retired from work and yet have before them, thanks to medicine, a stretch of years to live.

The fact that our population has also become more and more urbanized in the last century aggravates this problem. In 1850, 16 per cent of the people lived in communities of 2,500 and over. Today more than 60 per cent live in urban areas, while less than 18 per cent have chosen to remain on the farm. A farm is much more hospitable to the aged than is a roaring metropolis. A man continues to live in close association with family and neighbor in the rural section. The impersonality of life does not strike one as forcibly, and even though burdened by many years one does not feel as detached and as alone in those surroundings. The senior citizen in a city finds time hanging heavily upon his hands and also is in danger of succumbing to a feeling of uselessness. Though the doctors will not let us die, the problem of continuing an effective life still remains.

Another factor that adds difficulty to the situation is that ours is a youthful civilization in America, placing a high premium on youth. There are people who are offended when told they look their age, though one finds it puzzling why this should be so. People are highly flattered when told that they haven't changed in twenty years, despite the fact that the entire world about them has undergone profound transformation. It is curious that it is regarded as a compliment that one has stood still while all the world has moved. Whole industries have been built up that promise to keep their clients looking young. Indeed, many people are wearing themselves out and aging themselves unnecessarily in the desperate attempt to keep youthful. The older person feels that he has been placed on the shelf in a world which belongs exclusively to the young.

This was not always so. In the Bible the aged are spoken of with great respect. We are commanded to rise in reverence before the hoary


Rabbi, Congregation Shaarey Zedek, Detroit.



* Presented at the Annual Conference of the American Physical Therapy Association, Detroit, June, 1957.

head. Of the old man it is said that with him are wisdom and counsel and understanding. One of the books of the Apocrypha states, "As the lamp that shineth upon the holy candlestick, so is the beauty of the face in ripe age." Since, however, our civilization rests more on activity than on reflection, more on practical achievement than wisdom, the aged have been pushed into the background and must adjust themselves to a situation in which they are neither honored, nor useful. Our economic structure has been largely unprepared for the great achievement of our time in providing longer life for people. The senior citizen finds himself displaced, unwanted, and regarded as incapable of pulling his weight in society.

To this must be added the fact that most people are unprepared for the situation which longer life creates. We put off thinking about our later years. We feel as if we will remain eternally young. We prefer not to think of what has become an unpleasant fact—age. We do not, therefore, set in motion early enough a process of preparation for our life in those years when we shall not be able to engage in our present activity, and when we shall not have to make allowances for the concomitant effects of the aging experience.

I feel that in this problem we shall have to learn to make room in our personal outlook for the naturalness of the process of aging. Getting older is part of life. It is neither more humiliating nor more unnatural than youth. Neither shame nor humiliation attach to seniority. As a matter of fact, there is a blessing in age, since if we weren't privileged to become older we would be dead. Part of this outlook must also prepare us to face the problems which age brings with it. Every stage in life has its own specific problems. Childhood, adolescence, youth, the middle years—all involve concrete circumstances and unique difficulties. The life that has no problems is not a life but a kind of suspension between living and death. The fact that age brings with it problems is not only natural but should also serve as a spur and a challenge since it affords us an opportunity to show our mettle and stimulates us to our best efforts. We must begin to accept the fact that time is not necessarily our enemy, for time can be an ally.

There are accomplishments and qualities that one cannot have without age. Only he who has lived long can have the greater experience and greater wisdom. Time helps to provide experience and enables us to acquire wisdom. Age permits a detachment from the turmoil and rush of life and enables us to secure freedom from the pressures and drives of ambition which characterize youth. It is the time of life when we need not be consumed any more by a gnawing impetuosity and compulsion to seek a higher position for ourselves. Undisturbed by stormy ambitions, we can settle down to a more peaceful existence. Age brings with it a new series of experiences and offers us new opportunities. We can launch upon a second career which, unlike our first, can bring us rest and calm. Our ship of life, not yet entering its harbor, can remain afloat in more placid and pleasant waters. Age offers us a time to fulfill the unfinished business of a busy life. Christopher Morley once said that "man is a folder of unfinished business." This folder has been gathering dust as pressure after pressure caused it to be buried deeper and deeper under a rising mountain of urgencies. Within this folder there may be memoranda about books we had wanted to read but never did, reflections that had come in a moment's insight which we had not been able to develop further, opportunities to serve the community which we did not seize before, the possibility of renewing friendships which we had permitted to fall into disrepair, the time and freedom to visit museums and libraries which we had for too long ignored.

The above indicates that age brings with it new frontiers and challenges no less stimulating than those of any other stage of life. Doctor E. J. Stieglitz, in his book on Geriatric Medicine, states, "The increased longevity of men may be made an incalculably valuable advance . . . the reward may be the dawning of a new era of intellectual conquest, man may then live long enough to think." The older citizen need not be simply a yearner after a past. He can be a pioneer of the future. Bernard Berenson, perhaps the world's greatest student of art, said at 88 that he wishes that he could stand at a corner with hat in hand and beg people to throw him their wasted hours.

It is an undeniably scientific fact that the older person can learn and perhaps learn with a unique intensity, since he brings to bear upon the new knowledge the experience of a lifetime. In our personal philosophy of life we shall have to discard some of the false values that see in vigor and wealth the sole goods of life. True success in human living lies elsewhere. The Bible points out that we grow not by what we get but by what we give. Indeed, living is giving and growth is a product of service. Our society needs volunteers who can aid in the various fields of

communal endeavor by coming as selfless volunteers interested not in personal advancement but in serving their fellow-men. Such lives can never be without meaning or excitement. People who live this way will never be overwhelmed by a sense of uselessness or futility. The real invalids and discards of our time are the self-centered, the socially unaware, the prisoners of selfishness who live in a world of low ceilings.

All of us are moving forward towards the setting sun. The path of life leads to the western horizon. There is beauty and radiance in the sky colored by the setting sun. Let us walk forward with the glow of that light upon our face.

# *Financial Planning for the Later Years**

**Helen Randall, M.A.**

During the conference you have heard highly important scientific facts about the later years, and later a speaker will discuss the philosophy of aging. Perhaps our place in this program is somewhere in the realm of the practical, down-to-earth, pragmatic, everyday—the financial aspects of planning for the later years.

I am proceeding on the supposition that financial planning for retirement, or the later years, is an individual personal concern of every one of us. I recognize that in your professional client relationship you may have a responsibility for others in this area of planning. A challenging responsibility it is, too, when we realize that at the present time nearly three-fourths of all Americans 65 and over either have no income or their incomes are less than $1,000 a year. Eleven per cent have incomes between $1,000 and $2,000 per year, while only 15 per cent have annual incomes of $2,000 or more. This situation may change as Social Security and corporate pensions become more widespread. Before we can hope to help others with their financial planning, however, it is essential that we have some personal experience and convictions of our own in this particular area.

We all recognize that money does not in itself insure happiness and satisfaction either now or in the later years, but adequate income will contribute considerably to worry-free enjoyment. Insurance companies have found that persons free from financial cares—such as those who have annuities—have longer life expectancies than the population as a whole. If you are financially secure, some of the changes in the later years may be easier to face. As someone has remarked, "Money won't make you happy, but it allows you to be unhappy in comfort."

We recognize that in every problem situation, we need a goal and a plan of action. A financial plan for the later years is a basic essential for security in retirement. The plan, however, should be a flexible one which can be changed as new circumstances occur.

Our first step then is to try to set up some reasonable goals for ourselves. No one can tell exactly how much he will require during the later years, but he can estimate how much of a reserve fund he will need. It is never too early to begin to develop your financial plan for retirement, so a start during your high productive years is smart planning for these later years.

If you want financial security in retirement, you must first know where you stand now. On the basis of your present budget of what you are spending for various living expenses, you can project what you think your expenses in retirement might be. A budget is a personal matter and only you can work it out. To start, you might list your current monthly expenses such as: food, clothing, housing, transportation, insurance, taxes, recreation, medical needs, etc. Now in another column, parallel with these current monthly figures, estimate what you think these items may be after you retire from your present job. There is a bright side to this, for in the majority of items, the amount will be somewhat less after retirement than the current figure. For example, there probably will be no

Director, Occupational Planning Department of the Welfare Federation of Cleveland, Ohio.

* Presented at the Annual Conference of the American Physical Therapy Association in Detroit, June, 1957.

children to support. Food may be less since you won't have to buy lunches at work or attend expensive luncheon and dinner meetings. Clothing too should be less costly when you don't have to dress for the office every day. This doesn't mean though that you eliminate the hairdresser or wait to visit the barber until you have "that long-haired artistic look."

As to housing, make it a "number one must" to have your home paid for and mortgage-free at retirement time. In a Cleveland survey of some 700 retirees of five large companies, one of the four factors which were found to have particular significance for successful retirement was owning one's home. After retirement, a man has time to do some of the around-the-house maintenance and thus cut down on expenses. The home might be converted into a two-family dwelling, rooms can be rented, or the house can be sold (usually for a profit) and the money used either for a smaller house or for income-producing investments.

Your retirement transportation figure may be less if you no longer have car or bus costs connected with your job. Your recreation item, however, may increase if you use your automobile more for travel and pleasure. You may want to investigate the comparative driving costs of different makes of automobiles. Perhaps you may feel that the more expensive car which the prestige of your job required isn't so necessary now. Don't forget to investigate all of the free recreational, cultural, and educational facilities and resources available in your community. You will now have time to take advantage of these stimulating and enjoyable opportunities.

Your taxes after retirement will decrease. You will have double exemptions on income tax ($2,400 per couple), no tax on your Social Security income, and your company or insurance income will be only partly taxable. The savings figure too will go down, since you can stop saving for retirement.

There is one item, however, for which you might well estimate more money. Medical expenses may possibly increase. It is extremely wise to provide hospitalization for yourself and your spouse after you retire.

Having tallied your current and estimated retirement expenses, your next step is to put down your current and retirement incomes. Retirement income includes everything except the principal from your savings. Your retirement income chart will include:

1. *Social Security*—$108.50 per month maximum.
   50 per cent for the wife if she is 65
   75 per cent of the 50 per cent if she is 62
   80 per cent if a woman worker retires at 62
   If a wife takes her Social Security at 62, she is ahead for 12 years.
   If a woman worker takes it at 62, she is ahead for 15 years.
2. *Company pension.*
3. *Insurance.* Be sure your insurance premiums are paid up by your retirement date; study your insurance policies now to determine what options they allow—you may be agreeably surprised by their income features.
4. *Savings.* A "fluid" emergency cushion of from one to two years of your retirement budget is suggested by some of the retirement planning counselors. This cushion, to be used only for emergencies, might be easily accessible savings accounts or government bonds.
5. *Investments.*

If you find that the total of these five retirement income items does not match your estimated retirement expense budget figure, just relax. Most people find themselves in the "red" when they first start planning. You can either reduce your retirement expense budget, or increase your retirement income by dipping into your savings, working full or part time, or revising your current budget to provide for regular investments which will supplement your Social Security and/or pension.

Investing means putting your money to work. Four objectives of investment programs are:

1. Safety
2. Income (of greatest concern during the later years)
3. Capital appreciation (of main interest during your middle years)
4. Growth (most important during your youth)

Two types of investments meeting the characteristics of safety and income are thrift investments and fixed-income securities. Thrift investments include bank savings accounts and U. S. savings bonds. Some people consider it a wise plan to invest in an "E" bond monthly in a 10 to 15 year program prior to their retirement, thus setting up a regular amount of income after retirement starts. This, of course, is using part of one's capital, but one needs to remember that no longer is it necessary to be saving for retirement since retirement is here. Persons already on retirement may find series "H" bonds are more attractive because they pay current income and there is no wait for maturity.

Other means of investing savings without un-

due risk of principal are in fixed-income bonds —tax-free government and municipal—and in highgrade preferred stocks. These may be more suited, however, to persons with more money than many retired people may have.

Common stocks are considered riskier than bonds or preferred stock but they have certain advantages along with the risks. They usually offer greater income than fixed-income or thrift investments, but this income varies. Common stocks are considered to provide a better offset, but not a perfect one, against a declining purchasing power of the dollar. The advantages of common stocks appear to make them suitable for inclusion in a retirement investment program, but the disadvantages recommend against putting all of one's retirement funds into common stocks.

Satisfactory common stock investment over a period of time requires three things: 1) Careful selection, which means selecting growth stocks, those that will increase in value during a longer term. At retirement, these growth stocks can be reinvested into income-producing stock. 2) Proper diversification; in other words, don't put all your investment into one or two stocks. 3) Regular supervision. Mutual funds are becoming increasingly popular since they provide, for a fee, all of these services of selection, diversification, and supervision. Let me emphasize that it is highly recommended that one obtain the services of a reputable and competent investment counselor.

How much should one invest in stocks? There is no ready-made answer to this question since it depends upon: 1) how long before retirement you start your investment program, 2) what your present financial status is, 3) what your financial obligations may be, 4) other resources (such as a home or insurance), 5) your knowledge and experience, and 6) what kind of personality you are. For the person who is a worrier and finds no satisfaction in taking risks, thrift and fixed-income securities are probably the best answer to his peace of mind. I know of one couple who had made some excellent common stock investments during the 20 years prior to the husband's retirement last May. They decided, however, that just before retirement they would sell all of their common stock on which they realized a considerable cash profit. This they invested in U. S. government bonds, both "E" and 'H," for as they said, "We're both worrywarts. We know that we will have enough income by way of Social Security, company pension, and government bonds; we don't have to worry about leaving a large estate to our children, so we are just going to have peace of mind and maybe not quite as much cash." There are, of course, many opinions as to the best investment plan for middle-income couples. Some go all out for insurance and annuities. Others caution to sticking with bank savings and U. S. bonds. Some suggest major reliance on stocks or real estate. A few advocate the sock. The majority opinion of the so-called "retirement experts" suggests for the smaller investor more or less even apportionment between thrift or fixed-income investments such as annuities and government bonds on the one hand, and variable-income investments such as stock on the other. Some investment counselors are now suggesting a 60-40 ratio in favor of common stocks, based on forecasts of continuing inflationary trends during the next decade.

How much money should you have as a retirement income goal? Your standard of living will determine your requirements. The more near-normal standard you can maintain, the better are the opportunities for enjoying comfort and contentment. But remember, as we pointed out earlier, your retirement budget probably won't need to be so high even to maintain present preretirement living standards.

An essential step in your financial planning is a will. There is a bad tendency to postpone making a will when in good health. If you already have made one, it is wise to recheck it at various intervals when your family responsibilities may be changed or your plans appear to be different. Your spouse should be aware of all of the implications of the will. One suggestion is for the husband to make a list of those things which his wife is to do in case of his death. These should be identified chronologically. Such a helpful list is advisable also for the wife to make out. In every aspect of the financial planning there should be a complete showing of hands between the husband and wife. It is not infrequent for the wife to find that her household budget becomes less after retirement. Knowing this and accepting it helps her both in planning and adjusting to her new role as the retiree's wife.

In summary, we might say that *first* it is extremely wise to have a financial plan for retirement and that it should be started now. *Second*, it appears that we can best develop our financial plan by preparing two budgets: one for retirement days and the other for current living. These will show how much we ought to be saving each month now and how much we

will need to supplement our expected income from Social Security and/or a company pension. *Third*, home ownership was emphasized as a primary step in a personal security plan. *Fourth*, we have pointed out the important place of life insurance in protecting our dependents and in building an estate. *Fifth*, we have urged immediate attention to the writing of a will and keeping it up-to-date. *Sixth*, the importance of a fluid emergency cushion has been pointed out. *Seventh*, we have noted the importance of being free of debt at the time of retirement, and *finally*, we have suggested channels through which our savings might be invested. These include investment in thrift or fixed-income securities, and investment in common stocks of long-term growth with good diversification and selection under regular supervision. In other words, for maximum retirement income security, income sources should be diversified between fixed income from Social Security, pensions, annuities, and cash which decrease in purchasing power as dollar value shrinks in inflation, and income like stock dividends which increase in purchasing power during inflation. All of this planning, of course, depends upon the length of time one has before retirement, his health, his family responsibilities, his financial worth, his goal in life and his personality.

As I mentioned earlier, there were four factors in the Cleveland survey of retirees which had particular significance for successful and meaningful retirement. Two of those were owning one's home and good health. A third was looking toward retirement as a period of opportunity and growth. The fourth significant factor was the attitude of the spouse toward retirement. Effective planning for retirement must be a joint venture based on a willingness to look ahead realistically with a certain degree of confidence.

These factors emphasize the point that your financial plan for retirement must be a tailor-made one—realistic, flexible, adaptable to personal and family needs and goals and to the changing economy.

We all probably agree that a financial plan for retirement is important, but how does one make a beginning? Retirement seems so far away and a financial plan so complicated and subject to the vagaries of inflation, war, and our changing economy. It is a fact, however, that the quality of a person's retirement reflects the way he has lived up to the time of retirement. Now is the time not only to make a plan but to initiate action on it. If you make a beginning now on financial planning for the later years, you will be adding life to the years which have been added to your life.

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## December Guest Editorial Writer

John B. Coburn was graduated from Princeton University and Union Theological Seminary, and taught English and biology for three years at Robert College, Instanbul, Turkey. Dr. Coburn is ordained in the Protestant Episcopal Church, and has served as assistant minister of Grace Church, New York; Chaplain for the United States Navy; Chaplain of Amherst, Massachusetts; Dean of Trinity Cathedral in Newark, New Jersey. At present he is Dean of the Episcopal Theological School, Cambridge, Massachusetts, and is author of the book *Prayer and Personal Religion*.

Dr. Coburn's sister, Helen, is a staff physical therapist with the Division of Crippled Children, Connecticut State Department of Health, and is a member of the Association.

# The Function of the Physical Therapist in Program Planning for the Adolescent Patient*

Edward N. Norris, M.S.

## Introduction

It is obviously appropriate that the physical therapist, a fully recognized member of the rehabilitation team, should be seriously concerned with the total life situation of his patients. The pitfall of becoming completely absorbed in diagnosis, disability, and technics (which could even be referred to as the "D.D.T.'s" of physical therapy) must be studiously avoided. *Patients are people* and cannot be divided for subcontract work.

The physical care and management of the disabled adolescent cannot be considered as an area of specialization within the field of physical therapy. The therapist or facility devoted exclusively to this group is the rare exception. In addition, a close study of the literature generally perused by the physical therapist does not reveal that any significant attention has been paid directly to adolescent problems. This is not to suggest, however, that the profession has neglected the so-called "teen-ager," but rather that the attention to this group has been secondary to considerations of diagnosis, disability, and technics. Nor is this to minimize the vital importance of these considerations; the need for an accurate diagnosis, a careful appraisal of the disability, and a thorough foundation in technics cannot be questioned. It is probable that physical therapists might come into professional contact with the disabled adolescent in almost any type of treatment facility except those limited to preschool children, geriatrics, or a specific diagnosis not common during the adolescent years.

It is highly doubtful that there is any technical difference, from the point of view of the physical therapist, between treating the physical problems of the disabled adolescent and those of any other general age group. Although the mode of application may vary, the technics or modalities, in themselves, remain essentially the same. The major factors then, in differentiating the function of the physical therapist in treating the "teen-ager," are not the specific mechanical technics involved, but rather the social, emotional, and psychological implications of this age range. Consequently, this discussion will be concerned primarily with the life situation of the disabled adolescent as it relates to the practice of physical therapy. Certainly such a consideration is as much a function of the professional therapist as are considerations of diagnosis, disability, and technic. Eugene Taylor[1] has outlined the four main areas of responsibility of the therapist and has indicated that the technical responsibilities are the easiest to fulfill, whereas the clinical responsibilities, which demand a high degree of success in interpersonal relationships, are more difficult to master. Nevertheless, as a member of the rehabilitation team, the therapist must subscribe to the concept which demands the assumption of responsibility in the broad area of social, emotional, and psychological factors. When the success of treatment depends on the ability of the therapist to motivate the patient to do activities that are difficult or even painful, it is necessary to develop a fund of human understanding through familiarity with the total life situation of the patient. This often provides the key to motivation. Alger and Rusk[2] called attention to the need for a "psychiatric approach" and state that it "can be used by any physician who appreciates the important psychological factors which are always operating in both the patient, and in himself." Certainly such an approach is also desirable for the physical therapist who often has a closer "working relationship" with the patient than does the physician.

## The Normal Adolescent With A Disability

Academically, adolescence is that phase or stage, in the *continuous* process of development, between the onset of puberty and the full bloom of adulthood. Chronological age has little importance in this definition. Although based on a physiological onset, there are numerous rami-

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* Presented at the Annual Conference of the American Physical Therapy Association, Detroit, June, 1957.

fications into other areas as witnessed by the many and varied references in the popular press to the problems of this social grouping. Goldstein [3] has stated somewhat facetiously, although with serious overtones, that adolescence is one time in life when "psychotic" behavior is normal. Much of the problem, and at least a partial basis for understanding, is contained in the observation of Bernard [4] who states: "Their unique place (or rather displacement) in society is what constitutes a major part of the problem." Suffice it is to say, for the purposes of this discussion, that normal adolescence can be a "stormy" experience for the youth himself and for those in association with him.

A vital consideration, therefore, is whether or not there is any basic difference between the disabled and the nondisabled adolescent. It is believed that the true answer is found in the statement that this discussion is really concerned with a normal adolescent with a disability. Although many of the complexities of adolescence may appear somewhat later in the disabled, there is no reason to believe that the patterns of development are altered, except in the mechanistic aspects of the disability itself. Edgar Doll [5] observes: "The handicapped person needs the same things the normal person does, but needs more of those things." What, then, are some of the factors of "normal" adolescence that should concern the physical therapist in applying his technical knowledge and skill to the disabled youth?

## PHYSIOLOGICAL CONSIDERATIONS

Although it has been implied that this discussion would hinge largely on psychological considerations, there is an exceedingly important physiological factor with which the therapist must reckon. Gesell [6] has stated that, "Adolescence is pre-eminently a period of rapid and intense physical growth accompanied by profound changes which involve the entire economy of the organism." Concerning this physical development, Barker, Wright, Meyerson and Gonick [7] have stated several important factors:

1. "In stature, strength and motor control, adolescents are approaching the status of adults; they are still, however, intermediate between adults, and less mature children in these respects.
2. "Changes in these aspects of physique are occurring at a rapid rate both absolutely and relatively.
3. "Differences between individuals in these respects are greater than at any earlier or later time.
4. "There are great differences in the degree of maturity of body segments."

There are several ramifications of this sheer physical enlargement that are of significance to the physical therapist. One of these, which is of rather common knowledge, is the increased tendency toward deformity during such periods of rapid growth. This is probably the result of disproportionate growth between bone and surrounding soft tissue secondary to tightness and/or contracture in the latter. The technics or methods available to attempt to neutralize this tendency are "standard equipment" with the well trained therapist.

Another consequence of this physical growth is the so-called "awkwardness" of adolescence. It appears that this is probably the result of a lag between physical growth and neurological maturation to manage the larger "machine," or of the disproportionate growth between segments. In any case, it is doubtful that the therapist can do anything to completely eliminate this "awkwardness," but at least he should be aware of the possible implications in training the rapidly growing disabled adolescent. This is the period when the normal youth has ample opportunity to develop a smoothness of control of his neuromuscular system through athletics, gymnastics, and social programs as provided by our modern schools; however, the disabled child may not have this opportunity. Therefore, the therapist may have to intensify his efforts in an attempt to improve general coordination in addition to the management of the pathological disability. The professional should also be careful not to interpret this "awkwardness" as retrogression.

## SOMATOPSYCHOLOGICAL CONSIDERATIONS

It is pertinent in this discussion to consider some aspects of somatopsychology. It would be of value to know, for example, whether or not there are any basic personality or behavioral differences in relation to the diagnosis or the time of onset. Although it is easy to assume that there might be, or even that there should be such differences, there is little scientific evidence as yet to support such reasoning. On the contrary, Barker and his co-workers,[7] in a massive survey of the literature, concluded that, en masse, physically disabled persons do not differ significantly in personality and behavior from their normal counterparts. Many students of this problem be-

lieve that a physical disability, in itself, has no psychological meaning, or that crippling per se is psychologically neutral. They consider the value system of the culture in which the disabled person lives as being a critical factor rather than the mechanistic restrictions placed upon him. This, of course, gives full recognition to the important variable of the total life situation in establishing any somatopsychological relationships, and would not indicate that the type of disability, nor the time of onset, in themselves, would provide license to classify personality. This concept gains support from the recent findings of Block [5] which cast doubt on the often expressed belief that personality differences exist in the cerebral palsied on the basis of neuromuscular type.

It would appear that the personality and behavior of the disabled, as with the normal person, result from constitutional factors as emphasized by Gesell,[6] and the modifying influences of the cultural milieu in which the disabled lives. Suffice it is to say that the physical therapist should accept the disabled person as he finds him and not develop preconceived ideas as to what personality or behavior should be expected.

## ADOLESCENT NEEDS RELATED TO PHYSICAL THERAPY

It has been expressed and implied that, for the purposes of this discussion, there is little or no difference between the disabled and the nondisabled adolescent aside from the mechanistic aspects of the disability itself. In program planning, therefore, it is necessary for the physical therapist to understand the needs of the normal adolescent and to relate these needs to his association with the disabled youth. In his book, *Mental Hygiene for Classroom Teachers*, Harold Bernard [4] listed eight insistent needs of adolescence. They provide an excellent guide in outlining the needs of the disabled teen-ager.

The *first* is that the adolescent needs to be treated as an adult even though he is undeniably immature. This tends to provide a goal for growth. As Bernard indicates, the adolescent is in a social "no-man's land" between childhood and adulthood, and he should have the opportunity and the guidance to grow out of this cultural doldrum. There can be no reason to believe that there is any less need in this respect for the disabled adolescent.

The *second* need as outlined by Bernard is the need for peer adjustment. This is the time when the normal teen-ager is constantly concerned lest he be different, even though the difference is only slight or even imaginary. How critical this period must be for the disabled who knows he is different! This is also the time when the normal youth establishes much of the basis for subsequent independent interpersonal relationships through peer association and, at times, repudiation of parent and/or teacher. Any physical therapist who has had any experience with disabled teen-agers has also been the victim (understandingly it is hoped) of this grasp for independence.

The need for peer adjustment for the disabled youth should be interpreted as a need for adjustment to "normal" peers, if at all possible. Little can be said for the school (or other institution) that fosters or encourages a program of unnecessary isolation from society. Too often the disabled youth spends twelve years in a "special education unit" and then is "graduated" into a society or culture completely foreign to him. For those who are able, there must be an opportunity for association with normal peers during the formulative years. Certainly in keeping with the concepts of rehabilitation, the physical therapist has a responsibility to assist, whenever possible, in the graceful integration of the disabled into normal society.

The *third* insistent need of adolescence is the need for teacher adjustment. As indicated by Bernard, the teacher is often the person to bridge the gap from parental custody to independence. He states that this bridge should be based on a harmonious and mature relationship. In view of the close and often prolonged contact between the disabled and his therapist, it is quite probable that the therapist might often be the "bridge" for the disabled adolescent. This suggests that the physical therapist will often be placed in the role of counselor, and indeed this is frequently the case whether cherished or not. It is vital, therefore, that the therapist have some knowledge of, or at least interest in, counseling and guidance technics.

Related to teacher (or therapist) adjustment is the *fourth* need for parent-teacher adjustment. In reviewing this, Bernard expressed doubt that there should be any form of Parent-Teacher Association at the high school level. He cites the need for the adolescent to establish direct adult contacts without what might be perceived as an adult conspiracy. Again it should be permissible to substitute "therapist" for "teacher" when speaking of this need for parent-teacher adjustment.

Bernard lists the *fifth* insistent need of adolescence as the need for a determination of pur-

pose. There must be a reason for and a value from activities. Goals must be of discernible value rather than vague "somethings in the future." Who can question that the need for determination of purpose is just as vital to the disabled? Gesell [6] has stated: "He (the adolescent) must see the logic and the advantage of routine tasks which confront him." This should prompt the therapist to reflect how often he thinks in terms of routines, or how often he carries out a treatment program in routine fashion. Gesell [6] also commented: "Routines are designed to economize energy; but they have a mischievous way of generating friction and wasteful heat." Human motivation is most successful when based on the truth that one does best what makes sense to him.

As the *sixth* need, Bernard cites the vital concern of all humans: the need to have a sense of personal worth. This leads to independence of thought and action, and with the disabled is not independence a major goal? There are numerous ways the therapist can contribute to the development of a feeling of worth. One of these is to allow the patient some opportunity to "chart his own course," or at least include him in the planning of *his* future. Since the possession of some marketable skill or asset affords recognition and, therefore, contributes to a sense of worth (in addition to providing a livelihood)—the therapist should always think in terms of this practical goal. It is ironical that the physical therapist, by the very nature of his profession, generally focuses attention on the *disability*, when it is the *ability* that is really important. This is good argument for the often expressed belief in the value of short-term goals and ample opportunity to experience some degree of success.

Related to this need for a feeling of worth is the *seventh* need as expressed by Bernard: to understand oneself. The adolescent seems to have a particular need in this area. Bernard reminds us that we gain much of this understanding through experience and direct attack on self appraisal. It appears quite obvious that the disabled probably has a more acute need for understanding self than does his normal peer. Certainly the physical therapist can help him understand his physical self at least. Surely there is a moral obligation to assist the patient to come to an intelligent reckoning with his physical limitations and abilities. Edgar Doll [5] issued a challenge to the therapist when he said: "Perhaps it is his prior need, to accept himself and his own disabilities, and, as you know, one of the important aspects of physical therapy is precisely that, to discuss the child's condition with him candidily and have him accept it as it is." Undoubtedly, fulfilling such a tremendous responsibility is easier said than done, but few others aside from the therapist have a better opportunity to aid the disabled to accept his physical limitations. This again points out the fact that the physical therapist is often placed in the role of counselor, and raises the question whether or not his professional training reflects this function.

The *final* need outlined by Bernard is for adequate preparation for marriage. This need is expressed in the broadest terms. If such preparation is neglected for the normal, as is often suggested, how pitiful it must be for the disabled. The function of the physical therapist in this area is probably limited and generally indirect, but certainly such preparation is influenced by the understanding of one's physical limitations and abilities with respect to earning a livelihood or doing housework, etc. The therapist can never escape, nor should he try to escape, exerting some influence in this area.

## CONCLUSION

In discussing the function of the physical therapist in treating the disabled adolescent, emphasis has been placed on the value and responsibility of human understanding in interpersonal relations. The view has been taken that, aside from the mechanistic aspects of the disability itself, there is little or no qualitative difference between the disabled and the nondisabled adolescent. Further, it is believed that the major difference in treating the disabled youth, as contrasted to treating the disabled population in general, is not so much in the technical administrations themselves as in the understanding of the social and psychological factors particular to this group. It was suggested that the therapist must be ready on many occasions to assume the responsibilities of a counselor and should, therefore, be familiar with guidance and counseling technics. Finally, some of the specific needs of adolescence were reviewed and related to the practice of physical therapy.

Although the cliché is often used facetiously, it is hoped that it is evident that part of the responsibility of the physical therapist is to "see through Johnny so that Johnny can see himself through."

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## Case Report

# *Restoration of Function Following Severe Injuries to Lower Extremities*

Donnamae Winters, B.A.

A 32 year old male farm manager sustained a compound fracture of the upper third of the right femur and an above-knee amputation of the left lower thigh on June 21, 1955, when he was caught in a harvesting machine. The right leg was placed in traction and four weeks later the femur was plated. A primary closure was done on the stump and the stump was revised late in September.

Early in November, 1955, a skin graft was applied to the medial aspect of the stump. The patient was discharged from the hospital to his home, Dec. 12, 1955. He returned to the hospital on an outpatient basis for whirlpool for the right leg three times weekly until he entered the May T. Morrison Center for Rehabilitation on Feb. 14, 1956.

On admission, the patient was wearing a right long leg ischial bearing brace with pelvic band and was in a wheel chair. X rays showed nonunion of the right femur with a slight bending of the plate at the fracture site. There was no discomfort in the right leg, and motion of the right hip caused no pain; there was complete loss of internal rotation of the hip but no other joint limitations. The patient had full knee extension with 50 degrees of flexion, though there was considerable atrophy of the entire thigh and calf.

There were no tender areas, but the patient often had a throbbing sensation in the stump; he experienced no severe phantom pain. The left hip had slightly limited flexion, no hyperextension, a minimal limitation of abduction, normal adduction, limitation of external rotation, and no internal rotation. All muscle groups were weaker than normal and there was extensive loss of tissue along the medial and anteromedial aspect of the stump. There was decreased sensation over the skin graft site, but there were no pressure sores.

Except for getting from his wheel chair into the bathtub or onto the toilet, and getting in and out of a car, the patient managed wheel chair activities without help. He had stood for only short periods of time and had not attempted walking.

The medical team evaluation consisted of a muscle examination and range of motion test, review of the history and X rays, and a functional activity test. Changes were made in the right long leg brace to make it completely ischial weight-bearing, and a standard above-knee prosthesis with pelvic band, quadrilateral ischial weight-bearing socket, standard knee bolt, and Sach foot were ordered.

The orthopedist felt that increased angulation of the plate on the right femur was possible which could make additional surgery necessary. It was felt, however, that if the patient stood and was able to increase strength of the right lower extremity musculature, the possibility of laying down new bone across the fracture site would be greatly improved. Therefore, a program was planned with the following objectives: (1) to increase strength and range of motion in the right lower extremity and left hip, (2) to improve general strength and endurance, (3) to make the patient ambulatory, and (4) return to previous employment. The treatment consisted of whirlpool followed by stump conditioning, preprosthetic exercises and mat exercises, two one-hour periods of occupational therapy, and Guthrie-Smith exercises for the right knee.

During occupational therapy, prior to receiving a prosthesis the patient began standing on a tilt table, bearing weight on the right braced leg and using a make-shift ischial support on the left. He was able to stand for only 10 minute periods. While standing, his occupational therapy program consisted of a woodworking activity requiring trunk motion. During the first week, standing endurance increased to 30 minutes.

Since the patient had been relatively inactive for a long period of time, resistive arm exercises and

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mat exercises were given for general conditioning. As there was still a nonunited fracture of the right femur, Guthrie-Smith apparatus was used to exercise both the quadriceps and the hamstrings with the patient in a facelying position. The exercises were set up to maintain range of knee motion and to place slight tension on the quadriceps when being exercised. No passive stretching was done and maximum resistance was not given to knee musculature but was given to foot musculature.

The stump conditioning and preprosthetic exercises consisted of massage to the scar area to loosen the scar and to decrease general stump edema, mild tapotement, and "pounding" exercises on a small pillow. The patient was also given manual resistive exercises for all left hip musculature. His treatment day consisted of 6½ hours of treatment in 30 minute treatment periods. These were two 30-minute rest periods.

Ten days after admission to the Center the patient received his prosthesis, in the rough, mounted on a walking jig. His schedule was then altered to include parallel bar work, crutch exercises, activities of daily living, and gait. In the new schedule both rest periods were eliminated. Some mat and upper extremity exercise sessions were discontinued. The patient began using Loftstrand crutches; care was taken to maintain complete ischial weight-bearing on the right brace, and a lateral pull strap was added to the brace above and below the knee to help maintain proper alinement of the femur. By this time the stump was less edematous and was tough enough to do "pounding" exercises on a sandbag rather than on a pillow. In the two one-hour periods of occupational therapy the patient stood at a standing table for a part of each period to increase standing balance and endurance. He needed sling support for only a few days, then could stand without support.

After four weeks of treatment, Guthrie-Smith exercises were added for all right hip musculature. X rays showed only minimal callous formation, so maximum resistance was not given. A walking endurance period was added to the schedule which included walking outside the building and over grass and uneven surfaces. Standing balance improved greatly as did general endurance. The patient learned to get from his wheel chair to his feet; he could walk 50 yards using a four point gait and could ascend and descend 4 and 6 inch curbs.

The patient was discharged Apr. 13, 1956. At that time he was still using two Loftstrand crutches although he could walk short distances indoors with one crutch. He was completely independent in all self-care activities and could accomplish most ambulatory activities safely, with the exception of ascending and descending stairs without a handrail. He drove his own car with hand controls and was able to take care of all his personal needs. He returned to his former employment.

The patient returned to the clinic three months after discharge. X rays of the right femur taken at this time showed no appreciable change in bone healing at the fracture site and no increased angulation of the plate. The ischial seat on the brace was lowered slightly to allow some weight-bearing on the leg.

In December, 1956, eight months after discharge there was evidence of increased callous formation with maintenance of good alinement; therefore, the right long leg brace was removed.

In March, 1957, the patient again returned to the Center this time for a suction socket prosthesis fitting and for training in its use. A physical and occupational therapy program was designed to increase the strength of the right lower extremity, to increase standing and walking endurance, and to improve the appearance of the gait. Because of increased bone healing, progressive resistance exercises for the right hip masculature were added although maximum resistance was not given.

The patient learned to walk well using one cane, could ascend and descend stairs without a handrail, and improved in all other aspects of his program.

The patient is manager of a group of large farms in the Fresno Valley and has returned to this occupation.

This case was chosen to show the combined use of treatment modalities in a six hour a day program, and how the program can be modified and increased as the patient's strength and endurance improve.

## Suggestions from the Field

# *Hallway Parallel Bars for the Home*

Robert J. Hickok, B.S., and
Charles F. Chevillon

The physiological need for projected periods of standing and walking for chronically disabled patients who normally lead a wheel chair existence has been accepted and defined elsewhere. To bridge the gap from the well equipped rehabilitation center to the home, and to insure an atmosphere of safety for standing sessions, it may be necessary to acquire selective pieces of equipment. In general the bulky, unsightly gymnasium type equipment makes demands on space that is not readily available in the modern home. It also presents a formidable problem for the decorative talents of the average homemaker. A St. Louis housewife, with a new house in the offing, faced with the need for daily periods of parallel bar walking, consulted with her cabinetmaker and arrived at the solution seen in figures 1, 2, 3.

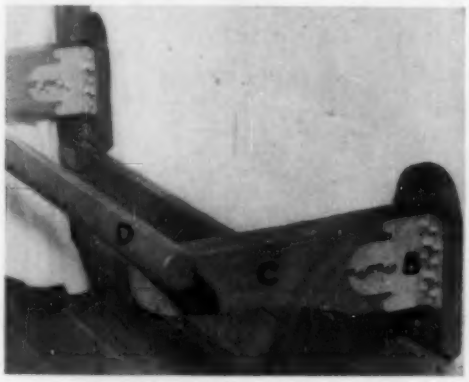


*Figure* 1. Bar in functional position.

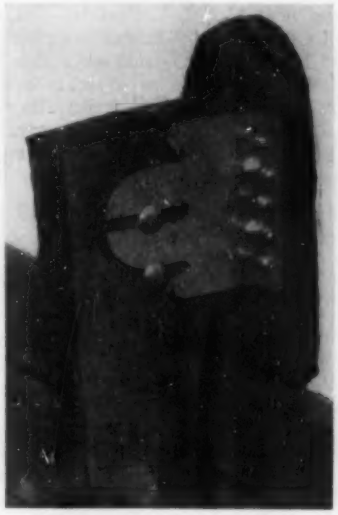

*Figure* 2. Bar in down position.

### MATERIALS NEEDED AND CONSTRUCTION NOTES

1. *Wall Plates.* (Fig. 1, Part A) Made from 1 inch 6 ply stock. The wall plates are approximately 8 inches long and 5 inches wide. This base plate is securely anchored to the wall studding by ¼ inch by 3½ inch lag screws. Since these lag screws are subjected to the major portion of stress when bars are in use, particular attention must be taken in attaching plate to studding.
2. *Folding Brackets.* (Fig. 1, Part B) 1 set of Larson #1200 table and bench leg brackets. Each set has four brackets, costs about $2.25, and is available in most hardware stores. Using the screws included in the bracket set, the brackets are firmly attached to the wall plate.*
3. *Rail Support Arms.* (Fig. 1, Part C) The support arms are shaped from 2 inch by 4 inch stock. The length of these arms is dependent upon the width desired between the railings. These bars are attached to the brackets by two round head carriage bolts secured by wing nuts. When the bars are in the "up" position (Fig. 1) or position of

Robert J. Hickok, Coordinator, Rehabilitation Division of The Jewish Hospital of St. Louis; Charles F. Chevillon, Manager, Abbey-Rents, Inc., St. Louis, Missouri.

* If not available locally, the nearest dealer can be found by contacting the manufacturer, Charles O. Larson Company, Sterling, Illinois.

*Figure* 3. Full view of bars in lowered position.

function, the bolts are retained in the center slot. When in the rest position the distal carriage bolt rests in the lower slot as seen in figure 2.

4. *Hand Rails.* (Fig. 1, Part D) The railings utilized in the bars pictured are adapted from 2 inch stair railing, and while this is quite satisfactory, aluminum or some other light metal might be used as well. The rails are attached to support arms by counter sunk screws. The screw heads are covered with wood filler, and stained.

SPECIAL CONSTRUCTION NOTES. All wooden parts should be sanded carefully and stained to match the surrounding woodwork. Special attention must be given to wall plate placement since this will ultimately determine the height of the bar. This height must be predetermined with care.

In homes without satisfactory wall space, telescoping sections of metal tubing can be used for hand rails and conveniently pushed out of the way when not in use. Thus, an intervening doorway would not invalidate an area for construction of the hallway parallel bars. These bars have merit for several reasons:

a) When in the lowered or nonfunctional position, (Fig. 3), they fit snugly against the wall occupying space that would rarely be used otherwise.
b) When the bars are in the up or functional position, and the wing nuts turned down securely, a positive lock stability is functioning that is difficult to duplicate in other portable type parallel bars.
c) They do not detract materially from the basic decor of the house.
d) The simplicity of design and construction lends itself to ready adaptability to almost any situation or material.
e) The set of bars pictured has a proven sturdiness for after two years of almost daily use they show no evidence of wear.

We wish to express appreciation to Charles McCarty, master cabinet-maker who helped design and construct the bars; and to Abbey-Rents, Inc., for the photographs which illustrate the paper.

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## Summation of Stimuli

"What is termed the summation of stimuli is often necessary to secure effective attention. Brain cells which have had sufficient tension developed in them to take them half-way on the road to rousing attention often sink back into quiescence if the stimulus is not sufficiently intense, continuous, or added to by other stimuli. The writer, who extremely dislikes the flakes of lamp-black, as well as the odour caused by a lamp turned too high, was busy one evening while a cloud of the sooty smoke was pouring out of the chimney. He was for some time unaware of the fact, There was first a slight noise due to the intensely heated current of air. This stimulus did not attract attention. Next, there was a slight flickering which he failed to heed. There was added to this a strong odour, and still the sum was not sufficient. Finally, when the flakes of soot began to fall thickly on his paper and hand, he noticed the condition of the lamp. The sum of all these stimuli was necessary to attract his attention." From *Education of the Central Nervous System*, by R. P. Halleck, published in 1898 by the Macmillan Company.

—Reprinted from Wisconsin Chapter Newsletter, September, 1957

# *Electric Hoist as an Aid to Lifting*

D. LaVonne Jaeger, B.S., and
Margaret M. Prior, B.S.

Manual lifting of patients is a difficult and dreaded operation requiring the services of three persons and sometimes more. To overcome this problem of lifting patients, an electric hoist with a trolley mounted on an I-beam may be used. The I-beam spans the room so that the hoist will run over mat, Restorator chair, and a clear floor space for transferring patients to and from carts or chairs. Two patient-carrying devices are used in conjunction with the hoist: a Comfort Seat Unit, as purchased, which consists of canvas seat with adjustable straps and a metal spreader bar (Figs. 1 and 2); an easily constructed ¾ inch by 72 inches by 18 inches

D. LaVonne Jaeger, Physical Therapist; Margaret M. Prior, Chief Physical Therapist, Kenosha Hospital, Kenosha, Wisconsin.

*Figure* 2. Comfort Seat and mat.

*Figure* 1. Comfort Seat and wheel chair.

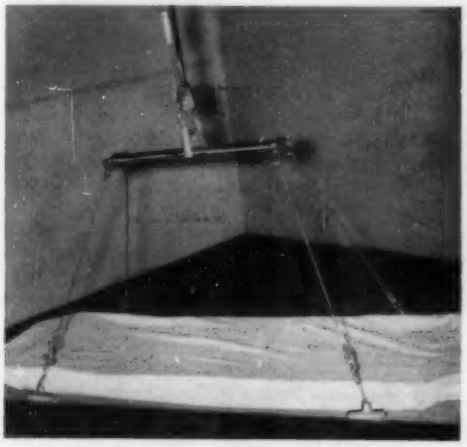

*Figure* 3. Plywood board and mattress.

plywood board padded with a cart mattress. Two heavy webbing straps 4 inches in width and long enough to extend beyond the edges of each side of the board and permit insertion of steel loop in each strap are securely fastened to the underside of the board. A convenient substitute for the board could be a body plinth as

used in a hubbard tank. Either device may be attached to hoist with the suspension unit. (See fig. 3).

The electric hoist is valuable for the following reasons:

1. *Safety*—The proper use of the electric hoist eliminates the possibility of injury to patient or personnel. It is virtually impossible for the patient to fall from either of the devices.
2. *Patient comfort*—The use of the hoist eliminates patients' fear of falling, and the carrying devices are comfortable even for patients with hyperesthesia.
3. *Less personnel required*—Most hoist operations can be performed by one person. A second person is required to position the patient properly in a chair. Nonprofessional personnel can be trained to use the hoist properly thus freeing physical therapists for other duties.
4. *Early mat activities*—By using the electric hoist, it is possible to place patients on the mat while they are still severely incapacitated.

If so desired the electric hoist may also be used as the support for crawling and walking activities.

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# Combination Ramp and Platform

Gudrun Tandberg, B.S.

The combination ramp and platform is to be used to teach wheel chair patients to get in and out of a bathtub. The platform compensates for 30 inch height of typical hospital tub as compared to average 18 inch height of a home bathtub. Figure 1 shows the ramp extending from the platform ready for wheeling chair on and off the platform. The left end of platform is placed against the same wall as the fixture end of the bathtub. The side of the platform is parallel to the length of the bathtub. Ramp and platform are connected by 2 hinges and the ramp has 3 additional hinges in the middle allowing it to be folded up on the platform when not in use. Four handles permit easy manipulation of the ramp in folding and unfolding by one person. Two additional handles at the upper end of the platform (see fig. 3) are used when the unit is folded for storage. The upper surface of the ramp is covered with rough rubber matting for traction. There are 4 lock wheels which secure the platform in position. The 2 small storage

*Figure* 1. Side view of combination ramp and platform unfolded for use. The arrow indicates the ramp which is hinged both in the middle (see dotted areas in Fig. 2) and on the end which connects the ramp to the platform.

castors just above lock wheels (see end view) do not touch or mar wall. The platform, which is a smooth painted finish, is counter sunk 1½ inches to keep wheel chair from rolling off and frames the folded ramp.

Figure 2 is the end view of combination ramp and platform folded for storage.

Figure 3 shows hook holding folded ramp securely to platform and 2 lock wheels at end of folded ramp for upending in storage.

Figure 4 is side view of platform held securely in place by 4 locked wheels, left end against the wall. The ramp is made fast by folding in half and hooking a notched metal bar from the platform into a wing-screw in middle of terminal section of ramp. To keep the wheel chair from escaping, it is *always* necessary to half fold the ramp.

Director of Physical Therapy, King County Hospital System, Seattle, Washington.

This is the fourth of several innovations in physical therapy equipment from the King County Hospital System, Seattle, which will be described by Miss Tandberg.

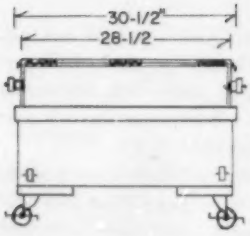



*Figure* 2.

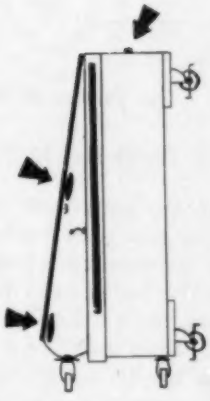


*Figure* 3.

*Figure* 2. End view of combination ramp and platform folded for storage. Dotted area represents hinges which allow ramp to be folded up on the platform when not in use.

*Figure* 3. Side view of combination ramp and platform folded for storage. The arrows indicate handles.

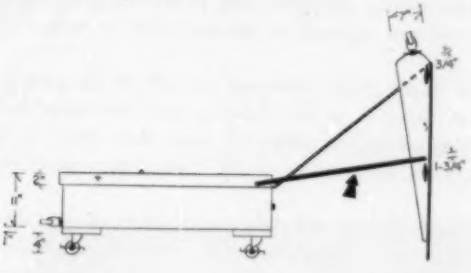


*Figure* 4. Side view of combination ramp and platform one-half folded for safety during use. The arrow indicates metal bar.

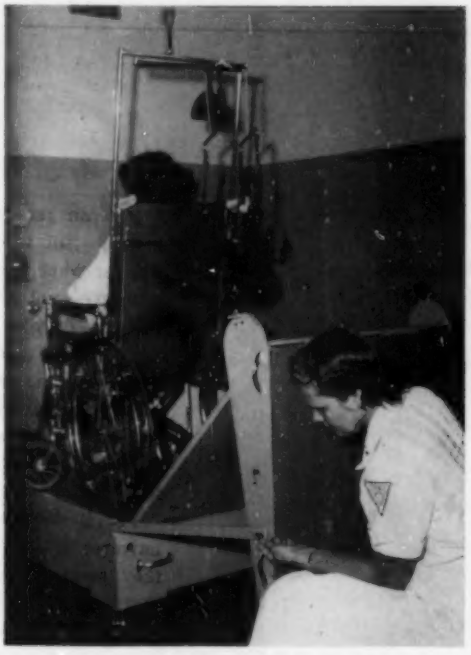


*Figure* 5. The ramp in safety position.

The author wishes to express appreciation to these members of the King County Hospital Staff—to Miss Marylou Ingram for her help with the drawing of the illustrations, and to Mrs. Pearl Rohr for her assistance with the taking of the photographs.

# Editorial

## The Power of Pain
## or
## "Merry Christmas" to Your Patients

Do you remember the patient you once had who did *not* get better? But who somehow made you a better person? Did you wonder what it was that gave him a kind of power that others did not have—not even your patients who did get well—and which was for you in your own life a source of strength?

There is a mystery about pain—about why it comes, how it goes, and why some people by pain are led into triumphant lives and why for others pain means destruction and death. Any who have had to endure pain or who have stood by others while they went through it know there are no cheap or easy answers to its mystery—or to its power.

For it does have power. Apparently one of the secrets of the universe is known only by those who suffer. Strangely enough they seem to get an inside track into some of life's mysteries that is unknown to the healthy and sound. Though pain may destroy some and turn others into cynics, to be sure, there yet are those for whom pain is the means of grace and power. Apparently a power that strengthens and supports is released only by means of suffering.

When suffering is borne nobly, accepted as part of the pattern of human life, when there is no complaining and bitterness, but a riding through and above the waves of pain, then there is a contagion of strength set loose in the world that is not otherwise given.

Is it not true that the people who help you most when you are in difficulty are those who have themselves shared a similar difficulty? Who can help the person facing an operation better than the one who has been through it himself? Can the crippled child be strengthened by anyone quite so well as the adult who is himself crippled and conquering in spirit? Who helps the bereaved but the bereaved? Is it not true that when you have had to face *your* operation, or your sickness or your grief that you have gained strength precisely from those who have themselves suffered? And sometimes in direct proportion: those who suffer most give most help.

So then here is a mystery: the most powerful people in the world really are the sufferers. When you need help—rock bottom help for the final life and death issues of suffering, pain, tragedy, death—the ones most likely to help are those who have themselves suffered. There is power in pain.

This is not to say, of course, that pain is good *in itself*. It is not. It is to say that pain *may be used* to unleash power for help to the distressed and suffering.

The reason for this may be found in a phrase frequently quoted at Christmas time: *The Word was made flesh and dwelt among us.* He who came in the flesh as the Son of God and dwelt among us, finally suffered pain and endured the Cross. By this He accomplished His mighty act of redemption and showed that God's will is accomplished most fully through pain and the Cross.

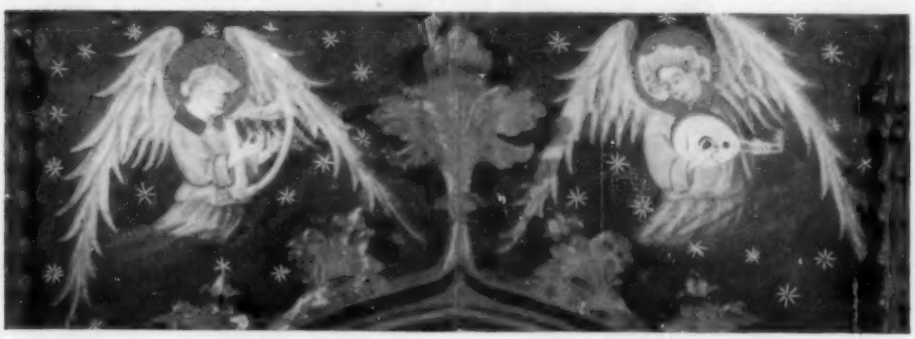
So when we have our crosses and our pains and respond to them as Christ did—for the love of God—then we too have our little share in His continuing act of redemption. The power then is God's power, and it is set loose through us. So we are able to help those who are in pain—even as we have been helped by all those who have shared this spirit: to accept pain for the love of God.

May this be a "Merry Christmas" for all your patients. Most of all for those who are not released fully from pain this Christmas time. As Jesus endured the Cross for the joy that was set before Him in doing God's will, so may they accepting their cross of pain for the love of God know this same joy. For this abiding joy is a gift that comes with power to those in pain.

So—a Merry Christmas, and a joyful one, especially to those blessed this Christmas with the power of pain! And may we who do not suffer bear the pain of those God has placed near us with all joy and grace for the sake of Him who continues to dwell among us in those who suffer.

JOHN B. COBURN, D.D.
*Dean, Episcopal*
*Theological School*
*Cambridge, Massachusetts*

## Glad Tidings and Good Wishes



ANGELS PLAYING HARP AND LUTE. Detail from a painted retable by an unknown artist. Spanish (Valencian), early fifteenth century. Reproduced through the courtesy of the Museum from a Christmas card in the 1957 collection on sale at the Metropolitan Museum of Art.

# WORLD CONFEDERATION FOR PHYSICAL THERAPY *News*

## Third International Congress of the World Confederation for Physical Therapy

Paris—September 6-12, 1959

### Message from the President*

In May of this year I was privileged to represent the World Confederation for Physical Therapy at the General Assembly of WHO at Geneva. I would like to suggest the fullest possible representation of WCPT at all international conferences and congresses. Attendance at the General Assembly of WHO also provides the opportunity of meeting senior representatives of many of the non-governmental organizations. This chance of exchanging ideas would seem to be of great value.

The Tenth Commemorative Session, followed immediately by the Eleventh World Assembly, will be held, at the invitation of the Government of the United States of America, in Minneapolis, Minnesota, U.S.A.

I am glad to hear that many Member Organizations now arrange special mention of WCPT at suitable meetings of their members. I would like to suggest that this would be an occasion sometimes to mention the work of WHO. Perhaps not all our members are as familiar as they might be with the two fundamental principles which inspire the work of WHO and are defined in its constitution as follows:

"The health of all peoples is fundamental to the achievement of peace and security. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

The World Health Organization is "the directing and coordinating authority on international health work." As such, the more our own work grows, the more we should be able to contribute in our own field. The desire for a closer integration of all the services to achieve our various aims seemed to be a universal desire among the delegates one met and talked with.

The important event of the World Confederation for this year, so far, has been the meeting of the Executive Committee at Cambridge in July. It was good to meet old friends and to welcome new members, but it was sad that Sweden was unavoidably deprived of representation by the illness of Miss Fellenius. The Committee needs the help of all its members.

One is never satisfied with the amount of work achieved however hard one works! Two years to Paris seems a long time to wait for our next meeting. Perhaps at some future date yearly meetings of the executives may become possible. Results by post can never be as quick as by personal contact with the advantage of discussion of problems.

At the end of the Congress in New York the slogan was "Pennies for Paris." Then 1959 seemed far enough away and there was no urgency for saving but, with the actual discussion of the proposed arrangements, our Congress in Paris seems a reality and thoughts are already taking shape for the planning of parties to attend.

G.V.M. GRIFFIN
*President*

* Reprinted from the Bulletin to Member-Organizations. No. 12. September, 1957.

## Report of Honorary Secretary for the Year 1956

Since the last Annual Report was issued Member-Organizations have had the opportunity of stimulating personal contact at the Third General Meeting, which was held in New York during the Second World Congress. Representatives from other organizations not yet in membership were also present.

The highly successful Second Congress certainly made the World Confederation more widely known, as has been shown from the inquiries for copies of the *Proceedings* from official bodies, governmental organizations and individual physical therapists in many parts of the world.

The Executive Committee held a meeting at the end of the Congress week to consider the new tasks upon which it should embark. Among these were the production of educational guidance material, a document on ethical principles, and a brochure describing the Confederation and its work. The document on ethical principles has been completed and, after final approval by the Executive Committee in July 1957, will be circulated to Member-Organizations.

The three-monthly bulletin to members of the Executive Committee has been continued. The six-monthly bulletin to Member-Organizations informed them not only about each other's activities, but also about the work being carried on by the Executive Committee. It also served as an excellent medium of publicity, as it is circulated to official agencies and other interested persons in many parts of the world.

There has been an exchange of information between the World Confederation and such bodies as the World Health Organization, the International Labor Office, the Council for International Organizations of Medical Sciences, Union of International Associations, International Society for the Welfare of Cripples, International Poliomyelitis Conference and the World Veterans Federation, as well as with many national bodies interested in physical therapy.

Cooperation has continued with the United Nations, World Health Organizations, and the World Veterans Federation in the appointment of physical therapists in countries wishing to establish or expand their physical therapy services. Headquarters has a list of 12 physical therapists from 7 different countries who offer themselves for appointment in this field.

1956 saw a welcome increase in the membership of the World Confederation. The national physical therapy organizations in Belgium, Israel, and the Netherlands were accepted as members at the General Meeting held in New York. Two applications, from Chile and Colombia, are still under consideration. The Executive Committee also considered an application for membership from the Indian Association of Physical Therapists, but agreed to defer a decision until the organization had been longer established and was more representative of physical therapists from India as a whole.

Mrs. R. Agersnap, Denmark, Second Vice-President, represented the World Confederation at the Ninth Assembly of World Health Organization held in Geneva in May, 1956, and at the Second International Congress of Physical Medicine held in Copenhagen in August, 1956.

Miss M. Elson, at that time President, represented the World Confederation at the fourth Conference of World Organizations Interested in the Handicapped in New York in March, 1956.

Miss M. J. Neilson, the Honorary Secretary and Honorary Treasurer, attended the Regional Committee for Europe of the World Health Organization in Geneva in September, 1956.

M. J. NEILSON
*Honorary Secretary*

## WCPT Luncheon

It has become a welcome custom for physical therapists to hold a luncheon during the Congresses of the International Society for the Welfare of Cripples. The first was held in Copenhagen and the second in The Hague.

The third was held on July 23, 1957 at the St. Ermine's Hotel, London. Miss G. V. M. Griffin, President of the WCTP presided, and the seventy people present included physical therapists from Belgium, Canada, Colombia, Denmark, Germany, Greece, Holland, Israel, Sweden, and U. S. A., as well as a strong contingent from Great Britain. The guests were:

Dr. H. Kessler, Kessler Institute for Rehabilitation, New Jersey, U.S.A.

Mr. E. J. Taylor, *New York Times*

Dr. T. S. Sze, World Health Organization

Miss Mary Switzer, Office of Vocational Rehabilitation, Washington, D.C., U.S.A.

Mr. Kurt Jansson, United Nations and World Veterans Federation

Sir Cecil Wakeley, BT., K.B.E., C.B., President of the Chartered Society of Physiotherapy.

Sir Harold Boldero, Chairman of Council, Chartered Society of Physiotherapy

Dr. L. Guttman, O.B.E., Member of Council, Chartered Society of Physiotherapy

Sir Arthur Porritt. K.C.M.G., K.C.V.O., Member of Council, Chartered Society of Physiotherapy.

The top table was decorated with the flags of the fifteen member countries of the WCPT.

Speaking after the lunch, Mr. Kurt Jansson referred to United Nations and World Health Organization projects to establish physical therapy training and rehabilitation departments, and paid tribute to the World Confederation for Physical Therapy for its help in recruiting physical therapists for them. Owing to their cost the number of such projects was small. The development of physical rehabilitation, he said, must go hand in hand with social and economic development.

Dr. Guttman described how physical therapists could help in developing sport as an important factor in rehabilitation. He drew attention to the "Paralympics" (annual international sports meeting for the paralyzed) held at Stoke Mandeville Hospital immediately after the Congress.

## WCPT Exhibition at the Congress of the International Society for the Welfare of Cripples

The stand showed the member countries in flashing lights on an outline map of world. The left-hand panel contained photographs of physical therapists on official World Health Organization or United Nations assignments treating patients, and the right-hand panel showed the skylines of London, New York, and Paris, being the locations of the 1953, 1956, and 1959 International Congresses.

# *Index to Current Literature*

ANATOMY AND KINESIOLOGY

*The Anatomical and Physiological Basis of Low Back Pain.* D. V. Davies, Practitioner, Lond., 179: 123-128, August 1957

*The Mechanics of Standing on the Toes.* Wallace O. Fenn, Am. J. Phys. M., 36: 153-156, June 1957

ASSISTIVE DEVICES AND BRACES

*Braces and Brace Management.* E. F. Cicenia and M. Hoberman, Am. J. Phys. M., 36: 136-152, June 1957

*Foot Control Driving Apparatus for Patients Having Little or No Function in the Upper Extremities.* O. L. Huddleston, R. W. Moore, A. G. Garris, D. Kope and C. Enns, Arch. Phys. M., 38: 500-504, August 1957

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*Treatment of Burns in Elderly Patients.* T. G. Blocker, Jr., Geriatrics, 12: 457-459, August 1957

CIRCULATION

*Cardiac Hypertrophy Produced by Exercise.* E. J. Van Liere and D. W. Northup, J. Appl. Physiol., 11: 91-92, July 1957

*Intermittent Claudication. A Survey of Two Hundred Patients and an Assessment of the Value of Intra-arterial Therapy.* N. Bennett-Jones and A. Furber Murphy, Angiology, 8: 291-301, June 1957

*Lumbar Sympathectomy in the Treatment of Obliterative Vascular Disease of the Lower Extremities.* Reginald H. Smithwick, Surgery, 42: 415-430, August 1957

CIRCULATION

*The Shoulder-Arm Syndrome—Causation, Diagnosis and Treatment.* Ralph K. Ghormley, Rocky Mountain M. J., 54: 706-716, July 1957

*Thrombophlebitis Migrans.* H. Gaylis, Angiology, 8: 259-271, June 1957

DISABILITY EVALUATION

*Functional Grading of Abilities and Disabilities.* M. D. Warren, Brit. J. Phys. M., 20: 169-175, August 1957

ELECTRODIAGNOSIS

*Preparation of a Coaxial Electromyographic Needle Sterilizable by Heat.* Jerome W. Gersten, Arch. Phys. M., 38: 498-499, August 1957

NEUROLOGY

*Acute Cerebellar Ataxia.* D. G. Cottom, Arch. Dis. Child., Lond., 32: 181-188, June 1957

*An Investigation of Sound Localization in Patients with Neurological Abnormalities.* E. Geoffry Walsh, Brain, 8: 222-250, June 1957

*Epidemic Neuromyasthenia.* A. Shelokov, K. Habel, E. Verder and W. Welsh, N. England J. M., 257: 345-355, Aug. 22, 1957

*Epidemic Neuromyasthenia.* D. C. Pozkanzer et al, N. England J. M. 257: 356-364, Aug. 22, 1957

*Facial Pain, Its Differential Diagnosis and Treatment.* Dogan M. Perese, N. York State J. M., 57: 2807-2814, Sept. 1, 1957

*Neuralgic Amyotrophy (Paralytic Brachial Neuritis).* J. W. A. Turner and M. J. Parsonage, Lancet, Lond., 273: 209-212, Aug. 3, 1957

*Research Attack Against Neurological Disorders.* Pierce Bailey, Crippled Child, 35: 4-5, August 1957

*Rifle Sling Palsy in Marine Corps Recruits.* E. L. Burke, C. G. Glenn and J. F. Wales, U. S. Armed Forces M. J., 8: 1189-1194, August 1957

*What Causes Stuttering?* Esti D. Freud, Acta psychiat. neur. scand., 32: 137-150, 1957

(*continued on page 809*)

# Association News

Helen F. Landon, 2330 Larkin Street, San Francisco, California, passed away on Sept. 20, 1957. Miss Landon, a member of the Northern California Chapter, had been a member of the Association since 1931. She became eligible for Life Membership in 1951 but retained inactive membership in the Association.

## Chapter News

### Illinois

Graduation exercises of the 36th Class in Physical Therapy at Northwestern University Medical School were held at 6:30 P.M. Oct. 3, 1957, in the auditorium of the Veterans Administration Research Hospital in Chicago. Dr. Meyer Perlstein, Associate Professor of Pediatrics at Northwestern University Medical School, gave the address to the graduates. Dr. Richard H. Young, Dean of the Medical School, awarded the diplomas; and Mr. Louis Cotovsky, President of the Illinois Chapter, American Physical Therapy Association, pinned on each graduate the membership insignia.

Eighteen graduates in 1957 bring the total number of graduates from the course in physical therapy to 468.

### Washington

The Chapter is engrossed in planning for the 1958 Conference; committee chairmen have met and a form has been sent to all members in order that they may select conference committee duties which appeal and signify times when they will be available for committee work. A plea has gone out to inactive members to fill in at hospitals during conference so that active members may attend the meetings. The final note: This is our Conference; Let's all take part and make the Seattle Convention one to be remembered!

### Out-of-State Wisconsin Licensees

Physical therapists who are licensed in Wisconsin but are no longer employed in the state and who wish to maintain a valid license must re-register. An attorney general's opinion has stated that they must re-register each year on time or pay $7.00 for registering late. Out-of-state licensees may elect to wait four years, pay $7.00 and re-register thereby coming under the five-year maximum period. After the five-year period has expired, an examination or re-examination is required. No notice will be sent by the Wisconsin State Board of Medical Examiners.

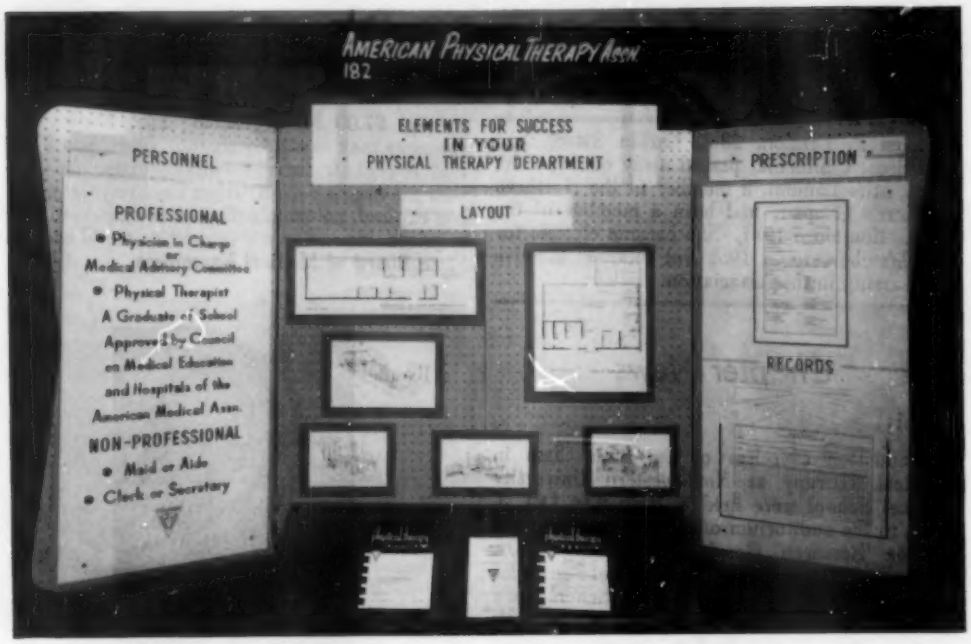
MARY E. KOLB

## Editorial Board Changes

After five years of outstanding service to the *Physical Therapy Review*, Mary Elizabeth Kolb, Instructor, D. T. Watson School of Physiatrics, has terminated her assignment as Book Review Editor. *Review* readers are well aware of the quality of book reviews included in each issue and the selection of subjects pertinent to physical therapy.

With more than 400 books reviewed under Miss Kolb's guidance, she has been responsible for the choice of reviewers and has also prepared reviews for inclusion in the annual index. Miss Kolb contributed to the development of good mechanics for management of this section of the journal and enjoyed a close working relationship with the staff of the *Review* office.

Jessie F. Waddell, Chief, Orthopedic Nursing and Physical Therapy, Michigan Crippled Children Commission, Lansing, will succeed Miss Kolb as Book Review Editor, having been appointed by the Board of Directors at their annual meeting in June. Miss Waddell prepared a guest editorial, "The Physical Therapist in the School," published in the November issue of the *Review*.




APTA exhibit at American Hospital Association's national meeting, September 30-October 4, highlights new handbook, Physical Therapy—Essentials of a Hospital Department.

## Marriages

Rosella Allen, of Glendale, Mo., now Mrs. Rosella A. Verdon, St. Louis, Mo.
Glendore V. App, of Babylon, N.Y., now Mrs. Glendore A. Raub, Babylon.
Victoria Becce, of Columbus, Ohio, to C. L. Bekkedahl, Newport, R.I.
Mary L. Bird, of Nashville, Tenn., to John E. Lawson, Brookline, Mass.
Molly M. Borchers, of Twin Falls, Idaho, now Mrs. Molly B. Painter, Gooding, Idaho.
Margaret Buchanan, of Franklin, Pa., now Mrs. Margaret B. Grundan, Franklin.
Judith M. Buliung, of Canton, Mass., to Carl C. Hoss, Pensacola, Fla.
Jane Burr, of Manchester, Conn., to Richard S. Massey, New Haven, Conn.
Ruth Carlson, of St. Paul, Minn., now Mrs. Ruth C. Ranheim, St Paul.
Alice Chesrown, of St. Paul, Minn., to K. Hubmer, Good Thunder, Minn.
Betty Crumback, of Farmington, Mich., now Mrs. Betty C. Ferah, Flint, Mich.
Frema D. Feinstein, of Springfield, Mass., to Bernard A. Gold, West Springfield, Mass.
Prudence P. Frost, of Littleton, Mass., now Mrs. Prudence F. Baker, Baldwin, Kansas.
Patricia E. Golden, of Fort Devens, Mass., to Valerian Shields, Ames, Iowa.
Barbara J. Gooden, of Chicago, Ill., now Mrs. Barbara G. Rose, Van Nuys, Calif.
Lucille Hannah, of Oteen, N.C., to Robert E. Cocke, Talladega, Ala.
Elna M. Hauser, of Berkeley, Calif., now Mrs. Elna H. Messer, San Pablo, Calif.
Joan E. Hawley, of Brookfield Center, Conn., to George M. Booth, Rochester, N.Y.
Anne M. Henke, of St. Louis, Mo., to Dale R. Maley, North Floral Park, N.Y.
Marye L. Johnson, of Sarasota, Fla., now Mrs. Marye J. Smith, Sarasota.
Mary C. Jones, of Roswell, N. Mex., now Mrs. Mary C. Church, Moultrie, Ga.
Bebe Kobs, of Mountain View, Okla., now Mrs. Bebe K. Reimer, Galveston, Tex.
Jane Lally, of Salem, Mass., now Mrs. Jane Maczei, Garden City, Mich.
Jeanne D. Morris, of Denver, Colo., to W. Stanford Foultz, Lodi, Calif.
Edna M. Otte, of Wauwatosa, Wis., to Walter Wenhold, Ashland, Pa.
Eileen Putek, of Merchantville, N.J., to John M. Convery, Arlington, Va.
Renate H. Quastler, of Oak Park, Mich., to David W. Taylor, Detroit, Mich.
Betty A. Searle, of Peoria, Ill., to Richard W. Johnson, Peoria.
Joye Siroky, of Beckley, W. Va., to Gert F. Baumann, Moundsville, W. Va.

Thelma Sprout, of San Mateo, Calif., to Louis T. Keller, Jr., Waco, Tex.
Mildred Svehlak, of Beckley, W. Va., to James C. Higgins, Beckley.
Joanne M. Walsh, of Bronx, N.Y., to John F. Flanagan, Chicago, Ill.

## New Student Members

*Albany Hospital*

Carolyn G. Baucom
Paula J. Crooks
Ruth E. Dearstyne
Mary E. Farnham
Sylvia J. Kowal
Edith D. Nuss
Linda J. Pembroke
Sharon E. Roos
Janet G. Span
Marcia A. Ward

*Cleveland Clinic*

Joab Badell, Jr.
Diann L. Blankenburg
Betty C. Canan
Daniel R. Crisci
Ruth A. Dombrowsky
Nancy Dunbar
Beverly A. Eckert
Willa G. England
Elizabeth R. Fordyce
Ann M. Gothot
Norma E. Hosmer
Patricia A. Kaburick
Carol A. Parr
Jack R. Rust
William L. Shirkey
Barbara R. Thompson
Frances A. Trivison

*Stanford University*

Jean Blankenship
James A. Chard
Shirley Creswell
Marvin R. Roberson

*University of Michigan*

Barbara Anderson
Marge Becker
Louise Carter
Donna L. Collins
Diana Cook
Joyce Hochman
Sharon McGovern
Linda Nelson
Elizabeth Oberlin
Dorothy Reading
Donna Rowe
Connie Sarason
Gail Shovein
Dianne Taylor

*University of Oklahoma*

Elaine B. Bastedo
Conyetta Coffman
Donald G. Holinsworth
Vertis M. Ingram
Mary J. Luthi
Barbara C. Roads
Robert E. Rodriguez
June C. Smith
Patsy S. Sullivan
Natalie Williams

*University of Pennsylvania*

C. Douglas Billion
Robert C. Bradley
Glenda J. Brady
Phyllis Buller
Hazel L. Cowan
Betty J. Dabney
Elwood J. Deering
Norman J. Dubiel
Douglas E. Frey
Maryann R. Gay
Harold L. Gold
Rita A. Hoffman
Lila M. Kimble
Jo Anne H. Klenon
Gabriella Krebs
Francis J. Kushner
Donald C. Mikush
Alfred E. Nicholas
Kenneth O. Paisley
Nancy J. Paschall
Robert N. Reifsnyder
John W. Robinson
Margaret S. Roof
James M. Sawyers
Joseph J. Sexton
Marvin Sitkoff
Martha C. Smith
Mary M. Spiller
Louis H. Steinberg
Mary E. Weber
Bonnie L. Weiler
Albert Weiskopf
Mildred L. Wilson
William F. Womack

CAPT. RACHEL ADAMS

## Association Member Wins Tennis Tourney

Captain Rachel Adams, physical therapist at Brooke Army Hospital, Fort Sam Houston, Texas, holds the Florence A. Blanchfield Tennis Trophy which she has won for two years, 1956, 1957, as the all-army women's singles tennis champion.

Captain Adams, a graduate of the University of New Hampshire where she majored in physical education, received her physical therapy education at Ashford General Hospital. She holds a master of arts degree in physical therapy from the University of Southern California. Except for the period of graduate study, Captain Adams has served with the Army Medical Specialist Corps since 1946.

The runner-up for the year was Captain Ethel W. Coeling, physical therapist at the Fitzsimons Army Hospital, Denver, Colorado.

## A Holiday Suggestion

In the first pages of this issue, descriptions of the APTA pin, emblem, and holders for the *Review* remind us that these are appropriate gifts for physical therapists. Physicians and hospital administrators may welcome subscriptions to the *Review*.

Orders must be placed at once to assure delivery for the holidays.

# Student Column

## Student Membership

During the current fiscal year the Association will complete a ten year period of sharing our Association activities with students in approved schools.

Student membership was first provided in 1948 with the adoption of new American Physical Therapy Association Bylaws. The statistical record of growth in this category of membership only partially reflects the contribution made by the students to the development of our profession and can in no way describe the advantage the Association has enjoyed as students complete their education and transfer to full active membership and participation in the program. The following figures do however tell a part of the story.

| *Year* | *Number of Student Members* |
|---|---|
| 1948 | 262 |
| 1949 | 346 |
| 1950 | 471 |
| 1951 | 515 |
| 1952 | 546 |
| 1953 | 671 |
| 1954 | 688 |
| 1955 | 693 |
| 1956 | 780 |
| 1957 | 983 |

## Then and Now

The following excerpt from an article entitled "Physical Therapy as a Vocation" by Ida May Hazenhyer, and published in the March—April, 1942 issue of the *Physiotherapy Review* will be of interest to present day students and a pointed contrast to the recommended salary ranges published in the November, 1957, issue of the *Physical Therapy Review*.

### Salary

"We leave to the last that which, idealistically, should be left to the last in considering a professional vocation—monetary remuneration. The results of a survey made by the American Physiotherapy Association among its members show a varying scale. From scarcely a living wage, the salaries ranged upward to $4,000. The Association, after studying the responses of its members, formulated a scale which will be available to the members and to interested organizations. The majority of opinion was that $1,500 without maintenance is a reasonable salary for a minimum beginning salary of graduates of approved schools. Likewise, a yearly raise of $100 is reasonable, depending, of course, upon the amount of responsibility demanded, and these increases should continue until a maximum commensurate with the demands of the position is reached. It is the opinion of the Association that salary increases should be based not only upon experience but also upon continued study and improvement in the professional field. Since a physical therapy technician has at least one year of professional study beyond that of a nurse or teacher of physical education, the physical therapy salary should be higher than in these other fields.

"To those who are keenly interested in salaries, the 'Scarcely a living wage' may seem discouraging considering the extent of training demanded. But the prospective technician need not be discomfited since the same is true in any profession. And in physical therapy as in others, there is the opportunity to climb the never-ending horizons of interest and professional achievement."

## The Spiritual in Physiotherapy*

Can we individually, on looking back to the beginning of our interest in physiotherapy recall any one incident which seemed to open the way? Was it not a gradual outgrowth of interest in serving others as we found ourselves a part of the great social scheme of just living? Any real calling to be of good should be the natural result of many experiences.

The too sudden inspiration so often promoted by extreme emotion flares up like a bonfire fanned by a breeze only to die out with its last

* Editorial from the May-June, 1930, issue of the *Physiotherapy Review*.

tiny spark. The fire well laid of both twigs and logs, fed constantly from a store of good material, guarded from sudden gusts of wind, burns steadily, giving out both heat and light and under continued care may burn a century.

Let us be moderate and steadfast in our desire to serve; ready to undertake the new but keeping in touch with the old; eager to blaze the trail but following compass and guide. We may often grow discouraged with the failure to produce spectacular results. Our path may lead us through a monotonous routine of apparently little worth. With an earnest desire to help human suffering let us bear in mind the far reaching influence we may exert upon others through a keener understanding of the inner being. Search for something deeper than human flesh and know more than muscle and bone. A timid nature will lose its fear and a discouraged nature will find strength to meet physical pain.

## Index to Current Literature

*(continued from page 804)*

NEUROPHYSIOLOGY

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# Physical Therapy Programs

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Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, tuition, and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

| | *Degree* | *Certificate* |
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| **CALIFORNIA** | | |
| Mary J. Dodge<br>School of Physical Therapy<br>Childrens Hospital Society<br>4614 Sunset Boulevard<br>Los Angeles 27 | ‡ | † |
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| Lucille Daniels<br>Division of Physical Therapy<br>Stanford University<br>Stanford (Palo Alto) | † | † |
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| Charlotte W. Anderson<br>Department of Physical Therapy<br>University of Southern California<br>University Park<br>Los Angeles 7 | † | † |
| **COLORADO** | | |
| Dorothy Hoag<br>Curriculum in Physical Therapy<br>University of Colorado Medical School<br>Denver 20 | † | † |
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| Olive C. Farr<br>Physical Therapy<br>State University of Iowa Hospitals<br>Iowa City | | † |
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| Ruth G. Monteith<br>Section of Physical Therapy<br>University of Kansas Medical Center<br>Kansas City 12 | † | † |
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| Isadore Brown, Acting<br>School of Physical Therapy<br>Charity Hospital of Louisiana<br>New Orleans 12 | | † |
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| Constance K. Greene<br>Department of Physical Therapy<br>*Bouve-Boston School, Tufts University<br>Medford 55 | † | |
| Shirley M. Cogland<br>*Program in Physical Therapy<br>Simmons College-Children's Hospital<br>300 Longwood Avenue<br>Boston 15 | † | † |
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| Virginia Wilson<br>Curriculum in Physical Therapy<br>University of Michigan<br>University Hospital<br>Ann Arbor | † | † |
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* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

| | Degree | Certificate |
|---|---|---|
| **MISSOURI** | | |
| Sr. M. Imelda, S.S.M.<br>Department of Physical Therapy<br>St. Louis University<br>1325 South Grand Boulevard<br>St. Louis 4 | † | |
| Beatrice F. Schulz<br>Department of Physical Therapy<br>Washington University School of Medicine<br>660 So. Kingshighway<br>St. Louis 10 | † | |
| **NEW YORK** | | |
| Dorothy L. McLaughlin<br>*Division of Physical Therapy<br>The Albany Medical College<br>Albany 8 | ‡ | † |
| Mary E. Callahan<br>Courses for Physical Therapists<br>Columbia University<br>College of Physicians & Surgeons<br>630 West 168th Street<br>New York 32 | † | † |
| Elizabeth C. Addoms<br>Physical Therapy Curriculum<br>School of Education, New York University<br>Washington Square East<br>New York 3 | † | † |
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* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

| | Degree | Certificate |
|---|---|---|
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Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

# Abstracts

### Treatment of Degenerative Arthritis of the Hip

J. Albert Key and Lee T. Ford (Washington University, St. Louis, Missouri) GERIATRICS, 12: 399-405, July 1957

If the patient lives long enough and is active, degenerative arthritis, or malum coxae senilis, may be expected to develop in hips which are mechanically unsound because of dysplasia, trauma, injection, coxaplasia, orepiphyseal coxa vara. Because of the incongruities of the joint surfaces resulting from these conditions, the affected joints do not withstand wear and tear of ordinary use and signs of arthritis may appear in early adult life. However, the disease may develop in joints which seem to be normal. Here the disease first becomes manifest in middle or late adult life. Although one or both hips may be affected, the arthritis is unusual in that the other joints tend to be normal for a person of that age and habitus.

Whatever the etiology, the disease is relatively common and is the cause of considerable discomfort and disability. Consequently, it has received much attention from orthopedic surgeons and many surgical procedures have been used. These include: manipulation under anesthesia followed by immobilization in a cast; obturator and sciatic neurectomy; tenotomy; surgical revision of the joint by cheilectomy, acetabuloplasty, or débridement; subtrochanteric osteotomy; arthroplasty with metal cups or nylon; substitution of an acrylic or a metal prosthesis for the head of the femur; and, finally, arthrodesis. With the exception of arthrodesis none of these procedures can always be depended upon to yield a satisfactory result in a given patient. Therefore, the authors are interested in the conservative treatment of this disease.

The patient is given an understanding of his disability and is instructed to conserve his hips through protection and rest when it is painful. The use of a cane is a valuable means of temporary rest for such a joint. The patients are usually placed on a low-fat diet which is relatively high in proteins and low in calories. If the patient is overweight or even of normal weight, loss of some of this weight will benefit the hip. For relief of pain, acetylsalicylic acid is preferred and the use of dry or wet heat. When the hip is less painful, voluntary exercises of extension, abduction, and internal rotation are done with or without resistance.

The treatment of degenerative arthritis of the hip can usually be conservative. Surgical procedures may be carried out on carefully selected patients.

### Clinic and Prognosis of Rheumatoid Arthritis in Children

G. Edstom and P. O. Gedda (University Hospital, Lund, Sweden) ACTA RHEUMAT. SCAND., 3:129-153, 1957

This was a study by the authors of 90 patients having an onset of rheumatoid arthritis before the age of 15. In 23 per cent of the cases they found hereditary factors and 17 per cent followed various types of infection; however, 77 per cent had no preceding trauma or infection and, a factor noted as compatible with other statistics, was the predominance of females with 70 per cent of the cases.

The disease was generally noticed to involve the large joints of the lower extremities first. Two and 3 year olds were hardest hit and at the beginning of puberty there seemed a pronounced tendency to heal. While the children were hospitalized, various tests were taken and it became evident that visceral lesions were previously underestimated. Of the 5 typical cases of Still's disease, all 5 had cardiac involvement and in the 90 rheumatoid patients tested ocular symptoms were 15 per cent higher than in adults.

The patients were divided into four groups. The first, because of severe contractures, received surgery and physical therapy. Group two included those who had mild occurrence of the disease and were treated with rest, physical therapy, salicylic or amidopyrin preparations and vitamins within one year of onset. The third group was composed of active rheumatoid arthritics and gold therapy was the method of treatment. Group four received no gold therapy.

Observation of the gold therapy revealed various symptomologies in different patients. Some reacted with dermatitis while others had nephrotic symptoms or hepatic symptoms with jaundice. Gastroenteric inflammation resulted in several patients with fibrile reactions and exacerbation of joint symptoms were present in several more. The authors felt that chrysotherapy was not a great factor in the prognosis of the disease.

The kinesotherapy of joints was also carefully evaluated because some contractures were known to develop overnight. Many times the patient, though cured from the disease, would remain an invalid because of noncorrective deformity. Sandbags, pin traction, and plaster casts were passive means used to prevent contractures.

Results of the study revealed that prognosis for rheumatoid arthritis was better if the disease occurred at an early age. However, if the arthritis were not quiescent within three years, the outlook was poor. Although hormone therapy has been developed since this study, the authors find no marked differences as a result of their use.

### Education for Childbirth and Its Results

H. E. Rodway (Thorpe Coombe Maternity Hospital, Walthamstow, London) J. OBST. GYN. BRIT. EMP., 64: 545-560, August 1957

Since some preparation for childbirth has now become an important part of antinatal care in many maternity centers and obstetrical units, those interested in the welfare of the mother and child have been looking for evidence that education of the expectant mother and the practice of maternity exercises have made a helpful contribution to the course and outcome of labor and to the well-being of the mother and the newborn child. Claims have been made that preparation for confinement by talks and explanations of childbirth, the practice of relaxation, deep breathing, and postural exercises have shortened labor, increased the proportion of the spontaneous deliveries, lessened the need for providing analgesics for the pain of labor, and decreased the incidents of perineal trauma and postpartum hemorrhage.

The study of obstetrical reports has so far not revealed consistent evidence that the most important part of this preparation is the practice of exercises and that the best results in childbirth are found in obstetrical centers where emphasis is placed on physical preparation for this event. This report is given from case notes of 2,700 booked primiparae having single births, a thousand of whom were trained for childbirth by the practice of maternity exercises and by attendance at lectures and at group and individual

talks on health, hygiene, diet, and rest. Two nonexercise groups were included in this investigation. One group of 700 booked primiparae attended lectures and talks but had no physical preparation and another group of 1,000 did not attend lectures or exercise classes. Some of the women among the two nonexercise groups borrowed books on preparation for childbirth and practiced exercises without help from a hospital staff. The 1,000 patients who attended antinatal exercise classes held in small groups of 10 or 12, 3 times a week, represent 22 per cent of the 4,500 who had their confinement at Thorpe-Coombe over an 8 year period beginning in 1947.

In this investigation no appreciable difference in the average duration of labor was found between the trained, the partly trained, and the untrained groups of patients. This investigation also has not provided any evidence that the antinatal training for childbirth carried out at this hospital has lessened the need for pain relieving drugs and agents. For the exercise group there was a slight but insignificant lower proportion of cases with late hypertension and hypertension with albuminurea than for the lecture and control groups. With one exception, the complications of labor were not reduced by training for childbirth. This exception was forceps deliveries among the trained primiparae over 30 years of age. The difference here between the exercise group and the control group was statistically significant, but the difference between the lecture group and the other two groups was not significant. Trained patients had a statistically significant larger proportion of perineal lacerations than the lecture or control groups. The percentage of postpartum hemorrhage was higher for the trained and untrained than for the partly trained. The premature infant birth rate and perinatal mortality rate were approximately the same.

In conclusion the results of this investigation have provided little evidence that the practice of maternity exercises during pregnancy has had a favorable influence on the course of labor. The results suggest that education of the expectant mother may be a helpful contributing factor in reducing the incidence of prematurity and perinatal mortality. The article contains tables of data presenting the distribution of age groups, the duration of labor, the administration of sedatives, analgesics, and anesthetics during labor, the incidence of forceps deliveries, perineal lacerations and postpartum hemorrhage, and the incidence of premature and mature infant births and the perinatal mortality rate.

**Does the Tan Skin Prevent Eruption of Pityriasis Rosea?** (Discussion of fallacy in reasoning, importance of control study.)

J. V. Klauder (Department of Dermatology, Graduate School of Medicine, University of Pennsylvania), A.M.A. ARCH. DERMAT., 76: 200-205, August 1957

The usual occurrence of pityriasis rosea on the trunk and on the upper region of the extremities is only one of the different forms in which this disease may be expressed. Although the face, neck, forearms, and legs are usually exempt, these parts may be involved with or without involvement of the trunk. Indeed no region of the skin is exempt. The palms and the soles of the feet are usually spared but may be affected in which event the eruption is more likely to be accompanied with vesicles. Among the curious features of the disease are localized forms, the herald or primitive patch and the fact that the lesions follow the lines of cleavage of the skin assuming an oval configuration. In addition to these curious features the author has observed an eruption of pityriasis rosea of two weeks duration confined to the untanned skin, anteriorly and posteriorly covered by bathing trunks. The eruption was sharply marginated at the junction of the tanned skin around the waist line and around the upper region of the thighs. There were also lesions of the untanned skin of the inner aspects of the arms and forearms and in the axillae. Although the patient was seen in December the skin was still tanned.

The question arises then did the tanned skin prevent eruption of pityriasis rosea or was the eruption a localized form of the disease without relation to the tanned state of the skin? Conclusion that the tanned skin was casual in exemption of the eruption would be supported by analagous reasoning. An erythema produced by ultraviolet light to cause desquamation hastens retrogression of pityriasis rosea and is employed in treatment. Again by analagous reasoning, would ultraviolet light or its effect, tanning, prevent eruption of this disease? Another author reports that he has seen, in Italy, many cases of well tanned men with eruption of pityriasis rosea on both tanned and untanned parts of the body. Still another author has reported a well tanned person with the eruptions present exactly over an area covered by bathing trunks, in the axilla and on the untanned skin of the upper and inner aspects of the arm. This third author concluded that in a person whose body has been tanned by exposure to the sun an eruption of pityriasis rosea may avoid the tanned areas. The abruptness of cessation of the eruption at the borders of these areas was striking in all cases and admitted no other conclusions than that the local effect of sunlight had protected the corresponding parts from the disease. However, it must be mentioned that tanning of the skin is by no means an infallible protection against pityriasis rosea. The author then reports 10 cases of pityriasis rosea with various distributions of lesions.

The author concludes that in spite of the cases recorded, the tanned state of the skin plays no role in exempting the eruption. He regards the statement "the tanned skin prevents eruption of pityriasis rosea" as one with a high probable error.

**Radiohumeral Bursitis — Is It Traumatic?**

N. W. Paul (Lockheed Aircraft Corporation, Burbank, California) INDUST. M. & S., 26: 383-390, August 1957

An analysis of 314 cases of radiohumeral bursitis is presented. This condition is also known as tennis elbow, golf elbow, epicondylitis, epecondylalgia and epicondylitis humeri. The author believes that the term radio humeral bursitis alone should be used.

The study revealed that there was no history of injury in 137 of the 314 patients. Of the remaining number, the average lapse of time between the alleged inception of injury and onset of symptoms was 38 days. The average age of the patients was 43 years and no apparent occupational relationship could be detected. Often the patient claimed that the condition had been sporadic, with intervening periods of health and absence of symptoms. Some patients stated they had been on a high protein diet or for some reason had been taking quantities of liver. Often there were emotional problems.

As a result of these observations and others previously reported, the author believes that radiohumeral bursitis has as its basic pathology a metabolic disorder, that it is a rheumatic disease and should be classed with rheumatoid arthritis, gout, bursal and tendon conditions of the shoulder and other sites. Trauma itself is not a cause of this condition, although pressure periodically applied by normally moving tendons or other connective tissue structures on an *already inflamed bursa* will produce irritation.

Methods of treatment were arbitrarily divided into three groups: (1) those cases treated by one or a combination of heat, rest, manipulation, or surgical procedures; (2) those cases in which a posterior molded splint was used; and (3) those cases which were fitted with a metal-supported, laced leather cuff with the hand held in full dorsal flexion, to be worn continuously day and night. In this group a dietary change to an antipurine, antigout regimen was advised, as was avoidance of all stimulants to the nervous system. Inasmuch as the average duration of treatments was considerably less for group 3, this was considered the treatment of choice. Physical therapy of any type aggravated the condition and was contraindicated as were needles and injections of any kind.

### Osteoporosis

E. R. Yendt (University of Toronto, Faculty of Medicine, Toronto, Ontario) POSTGRAD. M., 22: 38-45, July 1957

Osteoporosis is the commonest bone disease encountered by the physician and its incidence will probably increase as the percentage of older people in the population grows larger. Consequently, familiarity with the fundamental nature of this disorder with its causes, recognition and treatment is of considerable practical importance. Some knowledge of the basic physiologic principles of bone metabolism is of great value to the physician who must diagnose and treat patients with generalized skeletal disease.

Osteoporosis must be distinguished from osteomalacia or adult rickets. In the latter disorders, the osteoblasts form sufficient matrix but because of deficiency of calcium or phosphate or both, all of the matrix does not become calcified. Histologically the trabeculae are normal in size and number, but strips of uncalcified matrix referred to as osteoid seams are seen along their margins. Bone once formed is not dormant. New bone is continually being manufactured and resorption of bone progresses simultaneously. At the end of the period of growth, these two processes are in equilibrium and the total mass of bone remains relatively constant. However, when for any reason the osteoblasts manufacture less matrix, the rate of bone resorption does not slow down in a similar fashion. Less bone is then formed than is resorbed and the eventual outcome is osteoporosis. Theoretically, an increased rate of bone resorption, the production of new bone being normal, could also be an etiologic factor in osteoporosis. Increased resorption is responsible for bone changes seen in such conditions as hyperparathyroidism and Paget's disease. Osteoporosis occurs in a variety of circumstances in all of which the osteoblasts are manufacturing less bone. In certain conditions the cause or causes of this functional defect are apparent; whereas, in others the responsible factors have yet to be demonstrated.

Disuse osteoporosis is the type in which there is clearest relationship between an etiologic factor and the subsequent development of the disease. The stresses and strains exerted on bone by weight-bearing and by muscle and ligamentous pulls provide an important stimulus for osteoblastic activity. The mechanism by which such forces affect the osteoblast is completely obscure but osteoporosis nearly always results when they are withdrawn. The osteoporosis of disuse may be local, for example, when one limb is immobilized in a cast or in the legs of congenitally paraplegic children or in the hemiplegic arm or leg. Immobilization of the whole body as in paralytic poliomyelitis may produce generalized osteoporosis. Other types of osteoporosis discussed are senile osteoporosis, Cushing's syndrome, hyperthyroidism, nutritional deficiencies, and postmenapausal. Various types of treatment are discussed dependent upon the etiology.

In sumary the author states that osteoporosis results from insufficient production of bone matrix by the osteoblasts and may occur under a variety of circumstances. Most patients have few or no symptoms and do not require treatment except advice regarding certain precautionary measures. Results of treatment with sex hormones are difficult to evaluate but their use is worth a trial in patients who are having symptoms, if there are no contraindications to such therapy. The importance of differential diagnosis is stressed. Other bone diseases may be associated with similar symptoms and radiologic changes which one should attempt to rule out before making the diagnosis of osteoporosis.

### The Future of Physical Medicine. VIII. An Editorial. Research Problems in Peripheral Circulation

A. B. Hertzman (St. Louis University School of Medicine, St. Louis, Missouri) AM. J. PHYS. MED., 36: 131-135, June 1957

Procedures utilized in physical medicine, with but few exceptions, influence the circulatory system. Heat, cold, stimulation, passive and active exercise—all exert an effect on the action of the heart, and regional distribution of the blood volume, vasomotor activity, and vascular reactivity. The action of these physical agents is not limited to one part of the body and thus the practitioners of physical medicine should be increasingly aware of the implications of the term "peripheral circulation." Most patients who present symptoms of circulatory dysfunction are instances of diseases of the blood vessels and no diagnosis or therapeutic program can be outlined without a careful analysis of the size, character, control, and behavior of the particular vascular bed which is implicated.

In the studies of the peripheral circulation which have appeared in the research literature, the principal emphasis has been placed on the measurement of the blood flow and oxygen uptake of the tissues, the evaluation of the adequacy of circulation as it relates to the needs of the tissues, the investigation of the various local and distant influences which regulate these relations and the measurement of the static and dynamic forces exhibited in the blood vessels of a vascular bed.

Though much has been accomplished by workers in this area, there is still only incomplete success in this field of investigation. Many opportunities and needs for continued research are immediately apparent.

Previous studies which meter the flow of blood in a principal artery do not give information as to the distribution of the flow into the various

vascular beds which are supplied by this vessel. Flow meter records also fail to furnish information as to the percentage of arterial blood which moves into the capillary channels as compared with that which is shunted through non-nutritive channels. Since respiratory exchanges with the tissues occur primarily in the capillary bed, some method of observation which would permit numerical comparison of the circulatory efficiency is urgently needed. A more thorough investigation of the vascular responses to thermal changes presents another opportunity for continued study.

The exact description of the distribution of the vasomotor outflow should be investigated, together with the control exerted by the vasomotor system on the peripheral vascular beds.

The anatomical dimensions of the circulatory system and the consequences of variations in size of this system have implications in studies of vascular hypertonicity and hypertension.

Peripheral circulation is known to exert a regulatory effect on cardiac action. Studies of the changes in peripheral venous resistance and venomotor activity are further avenues for continued research.

The urgency of developing additional observational methods for adding to present knowledge respecting the peripheral circulation is emphasized.

### Current Status of Spinal Traction

Eugene Neuwirth (Great Neck, New York) J. LANCET, 77:243-246, July 1957

In the days of Hippocrates and even into recent years, spinal traction has been used to correct deformities of the trunk caused by abnormal curvatures of the spine. The trend at present is to use spinal traction if there is disturbance of the intervertebral disk such as annular protrusion, nuclear herniation, or osteoarthritic proliferations. Friction and compression produced by these structural changes may give rise to pain and irritation of spinoneural tissues.

Elimination of gravitational force reduces the compression but other objectives of spinal traction include enlarging the intervertebral foramena, widening the center space, and straightening and relocating the nerve roots. The equipment for such procedures is a tilt table with head slings, chest corset, and pelvic belt. For cervical traction, the weight of the body is counteracted by a headsling and weights. Pelvic belt and chest corset are used for thoracic traction and the same combination, pulled in opposite directions is used in lumbar traction.

Indications for spinal traction are usually lumbar or thoracic intervertebral disk protrusions. Often the Lasègue test (straight leg raising) is done to determine the degree of pressure on the nerve root. In the author's experience, traction has proved successful in 75 per cent of cases involving cervical or lumbar vertebral syndromes.

Infections, anomolies of the central nervous system, ankylosis, torn muscles or ligaments, and fractures or dislocations are contraindications for spinal traction. If painful spasms accompany traction, treatment is immediately terminated.

The results have proved satisfactory in many spondylogenetic syndromes since using traction. Cyriax has reduced his laminectomy rate considerably. The author feels that surgery should be performed only when traction fails.

### The Transplancental Transmission of Poliomyelitis

Percy Barsky and A. J. Beale (Winnipeg Municipal Hospitals, Winnipeg, Canada) J. PEDIAT., 51: 207-211, AUGUST 1957

Documented evidence supports the conclusion that the viruses of rubeola, varicella, vaccinia, lymphocytic choriomeningitis, and encephalitis may all pass the plancental barriers. The occurrence of intrauterine poliomyelitis, on the other hand, has been the subject of considerable controversy. Despite the fact that the incidence of poliomyelitis in pregnant women has increased, no evidence of intrauterine poliomyelitis infection was described until 1954 by Schaeffer and associates. That same year Swarts and Kercher recorded a case of poliomyelitis in a newborn infant, in which intrauterine infection was plausible. This paper deals with a series of six stillborn infants born to mothers suffering from the acute phase of poliomyelitis. They were admitted to the Winnipeg Municipal Hospitals during July to November, 1953. Meconium and cord blood from these babies were examined for poliomyelitis virus.

A detailed description of the viral studies was given, as well as the method of typing the cytopathogenic agents found. Case reports on the six infants as well as the results of the virus studies were presented. Three of the six infants demonstrated Type 1 of poliomyelitis virus in the meconium, while no virus was isolated from cord blood. The finding of the virus in the meconium of these stillborn infants of mothers with poliomyelitis would appear to be clear demonstration of intrauterine infection, since the possibility of contamination of the meconium with virus seems remote. This further adds support to the concept that viremia is a feature of the pathogenisis of poliomyelitis.

### Shoulder-Hand Syndrome Following Myocardial Infarction with Special Reference to Prognosis

Joseph Edeiken (Medical Clinic, Hospital of the University of Pennsylvania, Philadelphia), CIRCULATION, 16: 14-19, July 1957

This is a study of 42 patients who developed symptoms of shoulder-hand syndrome after myocardial infarction. Of this group 32 were men and 10 women. The youngest was 38 years of age; the oldest, 73. The onset of the disability occurred from 4 weeks to 14 months after the coronary attack. In some, one or both shoulders were involved and, in most cases, one or both hands also. In some only the shoulders and in others only the hands were affected.

Complete or almost complete relief was obtained in 41 out of 43 attacks and over a period of 1 to 24 months (majority within 8 months) after onset. These 42 patients received no treatment other than local heat, analgesics, and exercises to shoulder and hand.

No direct relationship could be established between the location, severity, or extent of the myocardial injury and the onset, duration, and severity of the shoulder-hand disability. Some of the most obstinate disabilities occurred in patients whose myocardial lesions were considered minor.

Immobilization of shoulder and fingers after onset of syndrome seems to increase the severity and duration of the disability, whereas movement

in spite of pain seems to decrease both. All patients with coronary occlusion are now instructed to move their arms and shoulders while in bed and to rest their heads on their hands 15 to 20 minutes 3 or 4 times daily. Since the establishment of this regimen the shoulder-hand syndrome has been seen infrequently and the "claw hand" not at all.

An analysis of the data from this study seems to indicate that the shoulder-hand syndrome following coronary occlusion is a self-limited disability for which the prognosis is, in general, good.

### Physical Medicine Management of Thoracic Surgery Patients

R. A. Gregg, F. J. Sheffield and A. F. Mastellone (Fitzsimons Army Hospital, Denver, Colorado) AM. J. PHYS. MED., 36:164-172, June 1957

For the past nine years the Physical Medicine Service of Fitzsimons Army Hospital has played an important role in the postoperative management of tuberculous patients. The patient, though concerned primarily with the control of the disease, experiences much anxiety relative to the cosmetic disfigurement which may result from the chosen surgical procedures.

The authors of this article report that during the past three years a tremendous improvement in appearance has been noted in tuberculous patients subjected to thoracic surgery, and this they attribute to the increasing use of extirpative surgery for patients with localized pulmonary tuberculous lesions and the substitution of the modified for the radical thoracoplasty.

In the modified thoracoplasty the first rib is not removed and thus the stabilizing effect of the scalenus muscles are retained; the transverse processes are not sacrificed; and the extent of rib resection is much less than with the radical procedure. This preserves the function of the serratus anterior which is so very important for stabilization of the scapula against the chest wall and for maintenance of the scapulohumeral relationship. Finally, the decreasing use of the three-stage procedure has aided in better tissue approximation, less scar tissue formation and more rapid recovery of muscle bulk and strength.

Following extirpative surgery, deformities are not as marked as in the thoracoplasty patient and the restoration of function and normal physical appearance are more easily attained.

The authors outline the typical deformities which tend to occur following extirpative procedures as well as the classical deformities that can result from radical extrapleural thoracoplasties or from modifications of this procedure. They point out the need for a thorough understanding of these deformities so that they may be anticipated and either prevented or minimized by intelligent treatment. Any patient who has been treated with a radical extrapleural thoracoplasty should be observed for four major deformities: (1) deviation of the head and neck toward the unoperated side, due primarily to division of the scalenus muscles; (2) elevation and forward rotation of the shoulder girdle on the side of surgery, due to muscle imbalances created by the surgical procedure; (3) a cervicodorsal scoliosis with convexity to the side of surgery; and (4) a loss of mobility at the glenohumeral joint, due to surgical trauma, reflex spasm and pain, presence of drainage tubes, and positioning of the shoulder joint during surgery.

The proper technic for the prevention and management of these typical deformities is described. Four fundamental principles should be involved in the postoperative care of the thoracic surgery patient: (1) weak, injured muscles should be protected from the pull of the strong antagonists; (2) reeducation and strengthening of traumatized muscles should be stressed until maximal recovery is attained; (3) the range of motion of the shoulder joint should be maintained; (4) a postural program should be taught to each patient so that he may continue on his own once the formal treatment program is completed.

### Observations of the Topography of the Lateral Column of the Human Cervical Spinal Cord

Marion C. Smith (Neurological Unit of the Medical Research Council, National Hospital, Queen Square, London) BRAIN, 80: 263-272, June 1957

The location of the long tracts of the spinal cord are usually pictured as being fairly constant throughout the whole length of the cord. The fiber pattern, however, is much more complicated, with some of the tracts shifting in location from segment to segment. In some instances the fibers of one tract have been erroneously attributed to another tract as this shifting location of tracts has not been noticed. These changes are most noticeable in the cervical cord, where marked differences can be observed even in different levels of the same segment.

This paper, a product of 100 cases of tract degeneration in man, describes the changing relations of the largest groups of fibers in the lateral column of the cervical cord.

Histological studies were done on the nervous systems of 55 patients who had various pain relieving operations on the lateral column of the cervical cord. In addition the cords of patients who had various pathological or accidental lesions of the cord or brain resulting in degeneration of certain tracts, were also studied. The cords of human fetuses of different ages and those of normal neurological adults were also examined. In most instances every segment of the cord was histologically examined and a variety of dyes were used to confirm the findings. In most of the figures the sections are Marchi preparations, in which degenerating fibers are stained black. Eight plates are used to illustrate this article.

The arrangement of the large groups of fibers in the lateral column of the human cervical cord was considered in the following order:

1. *The changing pattern of the ascending fibers.* In the eighth to the fifth segment these fibers form a band from the posterior horn along the periphery; in the fourth and third segments the fibers form a more compact mass, and none lie in juxtaposition with the posterior horn; and in the second and first segment the fibers are in a band along the periphery, and some lie in contact with the posterior horn.

2. *Certain features of the pattern of the descending fibers associated with the changes in the ascending fiber pattern.* The illustrations here show the corticospinal fibers at the second cervical segment lying medially as suspected, but in the third segment they lie on the periphery of the cord immediately anterior to the posterior horn. In the fourth segment the fibers are still on the periphery, but at the fifth cervical segment they lie deep to the spinocerebellar fibers. The next feature illustrated shows that at the fifth cervical segment the corticospinal fibers again approach closer to the surface at a more anterior level.

3. *The changing relation of the*

*posterior and anterior spinocerebellar fibers to each other.* It is seen here that the fibers of the posterior spinocerebellar tract and those of the anterior spinocerebellar tract pursue separate courses in the cord until they reach the fourth and third cervical segments. In this region the two tracts become more closely merged and in the second and first segments many anterior, as well as posterior, spinocerebellar fibers move posteriorly and the two tracts are almost completely intermingled.

4. *The relation of the spinothalamic and associated fibers to the spinocerebellar fibers.* These fibers which form the medial group are mostly spinothalamic, spinoreticular and associated fibers. They extend much further anteriorly than the more peripheral spinocerebellar group, and they do not shift so far posteriorly in the upper cervical segments into the most posterior zone as do the spinocerebellar fibers.

The observations briefly summarized above are well illustrated by the figures shown though the author stresses that the diagrams give only a crude indication of fiber pattern and that it is erroneous to picture fibers of any one system forming a definite fasciculus in the spinal cord.

The above observations show that there are three patterns of fiber distribution in the lateral column of the cervical cord: that in the first and second segments, that in the third and fourth segments, and that in the fifth to eighth segments.

## Exercise Therapy

Nancy Salter (Medical Rehabilitation Unit, R.A.F., Chessington, England) ANN. PHYS. M., 4:81-93, August 1957

In this article the author has reviewed the trend of exercise therapy from the earliest centuries to the present day. Exercise in the sixth century B.C. involved mostly military athletics and weight lifting with a regular system of dumbbell exercises recorded as early as the second century A.D. Schools during the last 50 years have incorporated sports and physical education into the curriculum, and therapeutic exercise has become important within the past 40 years.

It is generally recognized that the combination of strength, endurance, and coordination is necessary for full functioning capacity of muscles and muscle groups. Technics to gain this usefullness, however, are varied and not often explained in detail. The foremost undetermined factor is the degree of fatigue which is optimum for maximum strength increase.

Several routines of exercise are introduced from the very simplest static contractions to more complex exercises involving mechanical devices. DeLorme's "high resistance-low repetition" progressive resistance program was reversed by Zinovieff in 1951 with the 10 RM load gradually decreased after starting with the maximum load. Both technics are heavy but are not carried out to complete exhaustion as are the Russell and McQueen exercises. Kraus was aware of the importance of timing and maintained that exercise done for an hour once a day differed from that performed 5 minutes 12 hours a day. Kabat and McQueen introduced "mass movement" patterns, the latter allowing "cheating" in the lifting of weights. However, Kabat used reflex response and motor unit activity as a basis for his program of exercise.

Most exercise routines were determined by normal muscle response but Guthrie-Smith worked primarily with the more severely involved muscles. Natural voluntary movements were encouraged, assisted if necessary by springs and slings which isolated muscles or muscle groups. Later, free and then resisted motions were used, with rhythmic contractions and avoidance of fatigue considered important.

Experimental investigation found no significant differences between six exercise routines but it was felt that it was clinically important to know the most effective range of motion. Another question considered but not resolved was the difference in exercises for weak muscles of joints affected by disease and muscles of joints not affected. Similarly, normal muscles and diseased muscles might or might not require different exercises.

Physiologically, exercise affects the circulatory, respiratory, and nervous systems. Hypertrophy of the muscles is due to increased fiber size and not to an increase in the number of muscle fibers. However, bulk is not necessarily proportional to muscle strength. Experiments proved that exercises in the overload zone and through the maximum range were best. DeLorme and McQueen agreed that the maximum load should be nearest the completion of range. In another test, isometric contractions under high resistance seemed as good as the isotonic contractions. The trend is toward more fatigue since there is some evidence that it is the neuromuscular junction and not the muscle fibers which undergo fatigue.

The author concludes that there has been much progress in the field of therapeutic exercise but many questions remain to be answered. The foremost two are: what optimum fatigue and what optimum load will produce maximum increase in strength, endurance, and coordination in weakened muscles?

## The Pyramidal Tract

A. M. Lassek, Clinton N. Woolsey, A. Earl Walker, and Benjamin Boshes. Moderator: Augustus S. Rose NEUROLOGY, 7: 496-509, July 1957

Discussion of anatomy of pyramidal tract by Dr. Lassek.

The pyramidal tract is the first tract to be observed within the brain and spinal cord of man. It has a known origin from the Betz cells, the largest in the cerebral cortex; it has the longest vertical course, the largest square area, and the greatest number of variable-size fibers. It is one of the most recent nervous pathways to be added to the central nervous system, phylogenetically speaking, since it is present only in mammals. By contrast it is the last to develop ontogenetically, requiring about two years for its maturation.

The first question raised is: Do the so-called Betz cells constitute the sole source of all the fibers? Counts on the number of Betz cells indicate that there might be around 35,000 such cells. A count of the axons in the human pyramids at a mid-olivary level reveals about one million, 90 per cent of which range from 1 to 4 microns. The great disparity is noted between the number of Betz cells and pyramidal fibers. It also seems logical to assume that large cells the caliber of the Betz type would not give origin to the very minute fibers which predominate in the pyramidal tract.

Results of other investigations done on subhumans do not harmonize with the concept that the Betz cells give sole origin to all the fibers of the pyramidal tract. When the Betz cell area was destroyed on monkeys, very few of the fibers disappeared below. In the cat, recent work suggests that fibers descend from the temporal and occipital lobes, in addition to the frontal

and parietal lobes, to lower centers via the pyramidal tract. The general conclusion was that it is highly improbable that the Betz cells contribute much more than a minor share of the total number of fibers belonging to the pyramidal tract.

The question is raised as to the function of the many fine fibers present within the pyramidal tract of all mammals. It is suspected that these fibers are visceral from the physiologic viewpoint. Results of studies indicate that they may subserve an autonomic function. If these numerous small fibers are concerned with an autonomic role, then a change in the physiologic concept of the pyramidal tract is necessary because, quantitatively speaking, they constitute a major proportion of it.

The last question raised here is a radical one. This is in respect to the possible presence of ascending fibers in the pyramidal tract. Various studies have found fibers which arise somewhere within the spinal cord of the cat and course upward within the pyramidal tract. More recently this has also been discovered in the pyramidal tract in man.

In respect to the phylogenesis of the pyramidal bundle one thing stands out and that is the variability of the tract as we go down the mammalian scale. One constant feature is that in all such animals it courses through the pyramid. It is still impossible to determine the over-all phylogenetic function of this tract when comparing microscopic anatomy with physiology. There are, for instance, some animals that have poorly skilled motor functions, but which have very well developed tracts numerically.

The last point revolves around where the pyramidal fasciculus stands in the hierarchy of tracts which influence the anterior horn cells. The role of the afferent system in respect to initiating and dominating efferent cells functioning in movement is mentioned. Since the pyramidal tract as an isolated unit is expendable in lower mammals and may be in man also if lost early in life, the afferent system may come first in the phenomenon of training the motor component to function during development. The afferent system may be the vital factor in restitution of function following injury to efferent units, including the pyramidal tract.

Dr. Woolsey discusses the role of the cerebral cortex in the control of motor function. Previous studies are reviewed which outlined the presently accepted areas of motor function. Recent studies, however, have reexamined the question of cortical motor centers and have defined anew the pattern of localization in the precentral motor area, establishing boundaries somewhat different from those previously accepted and adding significantly different and new information concerning the intra-areal organization of this motor field.

Dr. Walker in his discussion brings out further the possibilities that cells giving origin to pyramidal tract fibers may exist in areas at present not credited with possessing these cells. He leaves the reader with the question as to the possibility of the human precentral cortex containing both pyramidal and extrapyramidal fibers. The point in this discussion is made by the citation of many surgical procedures and a review of the results in the light of present knowledge and concepts of function of the pyramidal tract.

Dr. Boshes discusses separately the manifestations resulting from an upper neuron lesion due to a lesion of the pyramidal tract: weakness to paralysis, spasticity, increased deep reflexes, diminished to absent superficial reflexes, pathologic reflexes, no atrophy and no reaction of degeneration. He discusses the varying concepts as to the causes of these signs and in general questions the concept that the pyramidal tract is solely responsible for producing these signs generally attributed to it. Even the time honored Babinski reflex is shown to be not a foolproof indication of pyramidal tract lesion.

The general conclusion reached from these interesting and informative discussions is that the present concept as to function of the pyramidal tract is incomplete. Despite the fact that about 246 years have elapsed since the essential anatomic features of this tract were described, we are still wondering about its function. Many vistas have been opened, however, which could shed new light on many unsolved problems.

### Malum Gleni Senilis

Lee T. Ford and Wayne A. Simril (Washington University School of Medicine, St. Louis, Missouri) SOUTH. M. J., 50: 976-981, August 1957

These authors have chosen to call degenerative arthritis of the shoulder by the term "malum gleni senilis" because of the clinical and roentgenographic similarity to malum coxae senilis (degenerative arthritis of the hip).

The shoulder joint is not involved nearly as often as weight-bearing joints and joints of the spine. This report is based on observation of 14 cases, 7 male and 7 female. Ages ranged from 35 to 80 years. The main symptom of degenerative arthritis of the shoulder is pain accompanied by gradual limitation of motion. X-ray findings consist of joint narrowing, sclerosis, spurring, and possibly cystic change underlying the sclerotic bones, flattening of the humeral head, and occasionally loose bodies. Treatment is normally conservative, consisting of use of salicylates, application of moist heat, pendulum exercises, and the intra-articular injection of hydrocortisone. Results of manipulation of the shoulder under anesthesia are disappointing. Differentiation of the condition from other painful shoulder conditions is important because eventual recovery from the symptoms of malum gleni senilis is not to be expected as frequently as in many other shoulder conditions.

### Effects of Thoracotomy on Pulmonary Function; Patients with Localized Pulmonary Disease

R. Gorlin, J. H. Knowles and C. F. Storey, with technical assistance of H. P. Fletcher and S. H. Smith (Cardiopulmonary Function Laboratory, U. S. Naval Hospital, Portsmouth, Virginia) J. THORAC. SURG., 34: 242-249, August 1957

Much interest has been shown in the physiologic aberrations resulting from thoracotomy and pulmonary resection. The major concern, however, was over the functional status of the remaining lung, problems of intrathoracic dead space, over distension, emphysema, and clinical symptoms resulting therefrom, rather than the specific effects of thoracotomy itself. This report describes the changes in pulmonary function from the first week post-thoracotomy through to that time when normal function is regained.

Twenty-three patients between ages of 18-50 were studied before operation and at serial intervals up to three months following operation. No patients were included in whom more than a localized segmental resection was performed. Three patients subjected to extrapulmonary procedures were also included in the group.

The following lung volumes were measured:

1. Vital capacity
2. Inspiratory capacity
3. Expiratory reserve volume
4. Residual volume
5. Functional residual capacity
6. Total lung capacity

The following tests of ventilatory function were performed:

1. Maximal breathing capacity
2. Timed vital capacity
3. Basal ventilation
4. Walking ventilation

The most striking and consistent post-thoracotomy effect was the depression in voluntary expansion and contraction of the thoracic cage resulting in restriction of lung volume. This restriction was almost invariably seen in the inspiratory capacity and next most commonly in the expiratory reserve volume.

The changes described which result from thoracotomy are most marked in the first and second weeks following surgery and returned to predicted normal values between the fourth and sixth weeks. Accordingly, any severe abnormality of lung function detected six weeks after surgery (assuming proper cooperation in performance of tests) is most probably related to intrinsic pulmonary disease or disease of the chest wall itself .

There was no definite correlation with the amount of conscious chest pain, type of procedure, or extent of operation.

### Ivalon as a Chest Wall Prosthesis

Edward A. Fitch, H. G. Glass and F. H. Aves (Thoracic Surgery Service, Hermann Hospital, Houston, Texas) J. THORAC. SURG., 34: 265-268, August 1957

A large number of methods have been advocated for the satisfactory closure of large chest wall defects, but the problem remains unsolved in many instances.

The authors present a case report of an 8 month old infant with a relatively large posterolateral operative chest wall defect to demonstrate their method of closure. Ivalon sponge possessed the required qualities necessary to fill the operative defect and still retain sufficient rigidity to allow immediate normal respiration without paradoxical movement.

Polyvinyl formal acetate (Ivalon) sponge is a plastic with remarkable qualities. It has been used as plombage material in extrapleural collapse procedures on the tuberculous lung, as an intrapleural space-filling material after pneumonectomy and lobectomy, as a build-up tissue in plastic surgery, as a covering sheet in neurosurgery, and as synthetic blood vessels.

This material possesses a "form memory" which tends to return the plastic to its original form and density after alteration by pressure and heat, it has no carcinogenic properties, foreign-body reaction is uncommon, but febrile reaction and seromas have been observed. This material retains its original strength and compression indefinitely; indeed, it is strengthened as the body tissues grow into its interstices. The only evidence of the detachment has been observed experimentally in dogs following its use in unsuccessful aortic graft implantation. To date it is unknown if sheet prostheses of Ivalon may undergo this "wandering." The exact fate of the sheet with its constant dimensions in relation to the expanding size of a growing infant is unknown.

At the time of the writing of this article. a 3 month follow-up on the case presented revealed no clinical or roentgenographic complication. Ivalon has been used in two instances, in one case in a 24 year old woman with a postoperative thoracic hernia and in the case presented. At this early date compressed sheets of Ivalon sponge as a chest wall prosthesis are functioning admirably and deserve further study.

### Observations on the Value of Clinical Electromyography

B. L. Crue, R. H. Pudenz and C. H. Sheldon (Huntington Memorial Hospital, Pasadena, California), J. BONE SURG., 39-A:492-500, June 1957

Electromyography is a reliable investigative technic which is far more sensitive than the older methods of skin electrodes or ink recording. This article briefly outlines the underlying principles and thereafter, the authors present a series of 12 cases indicating in each, the importance of the electromyogram.

A normal muscle at rest is electrically silent. If, however. there is any interruption along the lower motor neuron from the anterior horn cell to the end plate, the muscle fibers contract involuntarily. This is called "denervation fibrillation" and must be distinguished from the abnormal involuntary discharge of the motor horn cell which may contract many muscle fibers causing muscle twitching or fasciculations. The electromyogram measures the electrical activity of the muscle fibers themselves. Distinguishable abnormalities are dependent on the recorded waves. Myotonia has a characteristic wave while peripheral neuritis or progressive spinal muscle atrophy presents a complex and bizarre pattern. Nerve root compression syndrome shows denervation fibrillations. These waves can be viewed on a cathode ray oscilloscope or heard over a loud speaker and each may be recorded photographically or on tape. The needle electrodes are not pleasant but are usually tolerated without sedation. After the ground plate is attached to the extremity to be tested, the needle is then injected in at least two areas and at four different depths in five directions so that at least 40 different areas are examined.

In herniated lumbar intervertebral disks, accuracy of the electromyogram compares well with pantopaque myelography. Although the myelogram is more accurate in disk protrusions between L4 and L5, the electromyogram has proven more effective between L5 and S1. It is doubtful that the accuracy and use of the electromyogram can be improved upon because after nerve damage it is usually 21 days before the damage can be seen electrically. This length of time is often too long to wait before medical steps must be taken. Also, if the posterior nerve root is damaged without involvement of the anterior root, the electrical test will be negative. Because the interpretation of specific root lesions may lead to error, the myelogram is the deciding factor. However, with the electromyogram, the myelogram, and the clinical evaluation, combined chance of diagnostic error is less than 99 per cent.

To prove this point, the authors included 12 case histories. The first involved an electromyographic diagnosis of a lesion overlooked when a more obvious abnormality was found. Cervical nerve root compression often masks brachial plexus injury especially if C7 is involved. Clinically difficult to recognize is the partial lower motor neuron lesion

when there is a concurrent partial upper motor neuron lesion but the electromyograph can help differentiate between the two. In the same way, it was used to rule out a clinically diagnosed lower motor neuron disease and to discover instead an ulnar nerve lesion. Another case illustrated its value when degeneration and demyelinization patterns led to the discovery of an extradural metastatic carcinoma. Although much remains to be learned about clinical evaluation of electromyography, it has been used successfully for objective substantiation in the field of functional complaints and malingering. Electromyography can still be used incorrectly, and often is, but when used in the diagnosis of lesions in which demonstration of minimum lower motor neuron disease is important it is a valuable asset. In summary, the authors feel that electromyography is not a substitute for careful clinical myelographic examination, but rather an important adjunct in the diagnosis of disease.

### Spine Fusion in Young Children

Halford Hallock, Kenneth C. Francis, and James B. Jones (New York Orthopedic Hospital, New York, N. Y.), J. BONE SURG., 39-A: 481-491, June 1957

To answer some of the questions about growth potential when posterior spine fusion is performed in the young child, the authors did bone growth studies in 15 patients by means of direct measurements on lateral roentgenograms. Each patient had a Hibbs type fusion which included two normal vertebrae above and below the tubercularly diseased vertebrae. The average follow-up age was 24 years and the average postoperative follow-up was 21 years. All fusions had been successful and the disease had healed with no increased deformity.

Roentgenograms indicated that once the disease had been stabilized following fusion, there was no further change in the kyphos although there was a tendency toward compensatory lordosis above and below the fusion. Narrowing of intervertebral spaces occurred in all patients with occasional obliteration possibly due to disuse atrophy or increased pressure of the growth of cartilagenous plates of the vertebral bodies. Indicative of definite retardation in the fused area was the trapeziform development of the last normal vertebra at the end of the fusion. The portion distal to the arthrodesis develops to a greater degree than does the proximal portion. All patients had underdevelopment of the fused vertebral bodies in both the sagittal and transverse diameters. Changes were more pronounced in the areas of previous disease.

The results of mensuration show that there is a variation of growth even in persons of the same age, but that younger children have the most growth potential. Averages in comparison with the normal indicate that anterior growth in the fusion area was 37 per cent less than normal and posterior growth was 45 per cent less. Normal vertebrae included in the fusion had a 23 per cent loss of anterior growth and a 36 per cent posterior loss of growth.

In comparison with normal average growth of different presacral regions, however, fusions between 1 and 5 years of age did not ultimately result in diminishing stature to any marked degree. If fusion is performed at age 1, decrease in ultimate presacral structure is only 3.8 centimeters with 25 per cent reduction or 6.1 centimeters with 40 per cent reduction. Fusion in the lumbar spine at the same age results in a decrease of 3.3 centimeters with 25 per cent reduction or 5 centimeters with 40 per cent reduction. The loss would be less than this if fusion took place at 5 years of age. However, if there occurred additional vertebral body destruction from disease, with cessation of growth, there would be nearly 37 per cent reduction of stature. Therefore, tubercular lesions should be fused early to prevent destruction and deformity. There is little chance of lordotic deformity even with the posterior retardation of growth which averages only 13 per cent. For the same reason, there is little to indicate correction of kyphotic deformity with fusion unless performed at a very early age and over a large area.

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### *Our Abstractors for December*

We are indebted to the following members of the Association for their assistance in preparing the abstracts in this issue.

Joan Brewer — Jean Cuthbertson
Dorothy Briggs — Mary Wood
Ethel Coeling — Martha Wroe
Oleana Cole — Mary Ellen Sacksteder

## *Book Reviews . . . . .*

### Therapeutic Exercise for Body Alignment and Function.

*By Marian Williams, Ph.D., Assistant Professor of Physical Therapy, Department of Allied Medical Sciences, School of Medicine, Stanford University, California; and Catherine Worthingham, Ph.D., Director of Professional Education, The National Foundation for Infantile Paralysis. Price $3.50 Pp. 127; illus. W. B. Saunders Company, Philadelphia, 1957.*

It is most gratifying to have this excellent book become available in its present form.

This manual has been developed over a period of years for use in therapeutic exercise courses at Stanford University. It is designed as an aid for all persons dealing with problems of body alinement and function. The method of the authors is to select those corrective procedures which are best suited for clinical application and to discuss them in terms of basic functional anatomy.

Initially, correct standing and an analysis of body alinement with procedures used for evaluation are discussed. This is followed by a chapter on the therapeutic exercise program: its objectives, content, and planning of the program—points in the teaching of exercises, and fundamental positions for all types of exercises. Principles of treatment and exercises for various areas are outlined. The last chapter describes optimum position of the body in activity and rest. In the appendix, muscles of primary concern in body alinement and functions are illustrated.

The material included in this manual has been well selected both from a standpoint of content and accuracy. It is well written and easily read. The illustrations, diagrams, and charts are numerous and excellent. The bibliography is extensive and well chosen.

This book should be invaluable to all persons who are concerned with therapeutic exercise either from a teaching or clinical viewpoint. It makes an excellent text for the physical therapy student. In the opinion of this reviewer, it should be in the library of every physical therapist.

**Textbook of Orthopaedic Medicine: Treatment by Manipulation and Massage. Vol. II.**

*By James Cyriax, M.D. (Cantab.), M.R.C.P. (Lond.) Physician to Department of Physical Medicine, St. Thomas' Hospital, London. 5th Edition. Cloth; price $6.50 Pp. 373 illus. Paul B. Hoeber, Inc., New York, 1957.*

This is an amplification of the original textbook *Deep Massage and Manipulation Illustrated*, published by Dr. Cyriax in 1944. The author is physician to the Department of Physical Medicine, St. Thomas' Hospital, London, and has a wide experience in the fields of rheumatism and soft-tissue injuries.

The premises upon which this book rests are (1) that when massage is required for deep-seated tissues it must be given with penetrating effect, and (2) that when joints have to be manipulated, great accuracy in technic is essential. The author feels that superficial treatment over the whole site at which pain is felt is inadequate, and that only when deeply penetrating massage is used in every indicated case will doctors in general be impressed with the curative value of massage.

Part One gives a review of the theory and practice of massage and passive and active movement. It includes chapters on rehabilitation after injury, bone-setting and the use of hydrocortisone. Two chapters are devoted to deep friction massage —the technic and indications for and against its use. Those conditions for which deep friction is indicated include (1) muscular lesions, (2) lesions of tendons, with and without a sheath, (3) ligamentous lesions (4) capsular contracture, (5) subdeltoid bursitis.

There is a short section on classification, technics and effects of massage, and massage in plastic surgery.

The greatest part of this text is devoted to illustrations with accompanying explanations for the application of deep friction and manipulation in the various conditions for which they are used. Approximately 110 procedures are illustrated and described, the description including indication, patient's posture, technic, duration and frequency of treatment, and results obtained by the method.

Part Four is devoted to the treatment of varicose ulcers, a contribution by Audrey Bartholomew, staff physical therapist.

Throughout the book accuracy in application is stressed. The direct methods of deep massage and manipulation require skill and judgment. The author has set forth his belief regarding the great value of these methods and has given detailed directions for the physical therapist to follow. The volume may easily be used as a reference or textbook. The style is clear, the explanations brief and the illustrations ample.

**Professional Practice Management.** *By B. C. Egerter, Doctor of Surgical Chiropody; Fellow of the American Academy of Chiropodists. President and Professor of Practice Administration, Ohio College of Chiropody; Lecturer on Professional Economics, Ohio Chiropodists Association, Southwest Chiropody Conclave, Massachusetts Chiropody Association, Temple University and California College of Chiropody. Foreword by William J. Stickel, D. S.C. Cloth; price $15.00. Pp. 504; illus. Pageant Press Inc., New York, 1957.*

This book is pertinent to the practice of chiropody. From its foreword, written by William J. Stickel, D.S.C. —"Ever since 1768 when D. Low, wrote a book entitled *Chiropodologia* the question of how much of a chiropody practice is *science*, how much is *art*, and how much is *business* has confronted us. In this book, Dr. Egerter provides the answers to many of the perplexing problems which arise in conection with these apparently paradoxical relationships. His clear and concise exposition of the business side of practice will be easily understood by student and practitioners. It will be particularly noted that he defines and describes business methods applied to chiropody practice which are well within the confines of the Code of Ethics promulgated by the National Association of Chiropodists."

The author is deemed well qualified by his colleagues and with 15 years experience in his field has presented the technics a practitioner in chiropody must know to insure the necessary quick and efficient performance of office routines and the elimination of unnecessary routines which decrease efficiency and increase expenses.

In this book there are nearly 50 photographs of modern professional offices, exteriors and interiors, consultation rooms and treatment rooms. There are 10 office layouts shown and more than 20 actual office forms. A bibliography is not included, but the book has a complete table of contents and an adequate index.

*Security in Chiropody*, published in 1949 and widely used both for professional reference and a required textbook in leading professional schools, has been rewritten and amplified in *Professional Practice Management.*

With many physical therapists now in private practice there is a need for a similar book in the field of physical therapy, for this profession is also part science, part art, and part business. Little has been written up to this time about the business side of practice and it is to be hoped that more attention will be given to this in the future.

**The Patient Speaks.** *By Harold A. Abramson, M.D. Associate Attending Physician and Chief of the Allergy Clinic, The Mount Sinai Hospital, New York City; Research Psychiatrist, Biological Laboratory, Cold Spring Harbor; Consultant, Huntington Hospital; Assistant Clinical Professor of Physiology, Columbia University; Consultant (Psychology) Department of the Army. Cloth; price $3.50. Pp. 239. Vantage Press, New York, 1957.*

This book is composed almost entirely of selected verbatim recordings of a patient under psychoanalysis; there are brief explanatory remarks by the author concerning each selection. The purpose is to clarify for the interested lay population the nature of a patient's verbal communication with the analyst, and to demonstrate to other analysts the value of collecting exact data by tape recordings of each session. The author has long been especially interested in allergies and asthma, has many publications concerning these conditions, and therefore his choice of an adult patient with lifelong eczema is entirely appropriate, his experience lending force and conviction to his interpretive comments.

The subject is a married woman, the mother of a young daughter, whose eczema persisted since infancy despite varied treatments until it gradually disappeared during four years of analysis. It was demonstrated to have been associated with a dependent and yet hostile relation-

ship with her very dominating mother. The content of the recordings, which were limited in this publication to the patient's comments regarding her mother, reflects a dutiful conscientious young woman who slowly is freed from her mother's command and enabled to orient more completely to her husband and child. There is nothing particularly dramatic or unique in her disclosures, and unless the reader has a specific interest in psychoanalysis, either professionally or as a patient, a few pages will suffice as a sample of the whole.

**Family Medical Costs and Voluntary Health Insurance: A Nationwide Survey.** *By Odin W. Anderson, Ph.D., F.A.P.H.A., Research Director of the Health Information Foundation, New York; Adjunct Associate Professor (Sociology) Graduate School of Arts and Science, New York University, New York; and Jacob J. Feldman, Senior Study Director with National Opinion Research Center, University of Chicago. Cloth; price $6.50. Pp. 251; illus. McGraw-Hill (Blakiston Division) New York 1956.*

In 1953 the Health Information Foundation conducted a survey of a national sample of the United States population to obtain information on family medical costs and voluntary health insurance. This is the first national survey of medical care costs since 1933, and therefore the results of the study, which are reported in this volume, are of considerable interest.

For ease of reading and reference, the statistical results are summarized in an introductory section called "Highlights." The body of the report consists of a presentation and discussion of the statistical results, followed by a discussion of their implications. There are two appendices, one containing the statistical tables and the other, a discussion of the methods used in the survey. Some idea of the scope and areas covered can be obtained from the chapter headings, some examples of which are (1) current enrollment in voluntary health insurance programs, (2) distribution of charges for personal health services among families and individuals, (3) utilization of hospital, surgical, and other services.

One of the more striking observations is that the coverage by voluntary health insurance is spotty; there are segments of the populations who appear to be inadequately covered. For example, although 61 per cent of the total population is covered, only 45 per cent of the rural population is enrolled as compared to 70 per cent of the urban. Also, 80 per cent of families with incomes over $5,000 have some insurance, as compared to 41 per cent of families with incomes under $3,000. Thus, there is a need for intensifying recruitment efforts in these selected segments of the population.

These data are useful in evaluating present insurance programs and in providing a picture of the present status of medical care costs. However, the authors point out that there exists a need for establishing some standard of achievement, some goals and objectives, to be able to determine more completely the implications of the collected data. It is also necessary to establish methods of measuring the quality of a medical care program in terms of preventive, therapeutic, and rehabilitation services. The enumeration of the number of services and their costs, although a necessary first step, is insufficient for total evaluation. More studies are needed to determine the best means of providing the high quality medical services necessary for the total care of the patient. This reviewer hopes that the Health Information Foundation will continue to carry out such studies and hopes that they will be reported in as lucid a manner as is the present one.

**Laurie, Physical Therapist.** *By Lois Hobart, M.A., former Associate Job Editor of Glamour and author of two other "career" books. Cloth; price $2.95. Pp. 192. Julian Messner, Inc., New York, 1957.*

Although there are countless books written as novels to introduce teenagers to various professions, none, until now, has been written about physical therapy. *Laurie, Physical Therapist* very commendably serves this purpose. It is a warming account of a young physical therapist's first year's experience. The author also includes a description of the necessary courses to be taken and of the personal requirements of a physical therapist.

The profession is presented quite realistically as well as sympathetically to the young reader curious about a future career. Incorporated in the novel are the names and addresses of several organizations concerned with physical therapy, e.g., the American Physical Therapy Association, as further sources of specific information.

Aided by a small grant from the National Foundation for Infantile Paralysis the author was able to spend much time with the staffs of physical therapy schools and departments to authenticate her material. This would be an excellent book to have on hand for high school students (particularly girls) interested in learning about the profession.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

## Our Book Reviewers for December

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## The-People-to-People Program Committee for the Handicapped

The Committee for the Handicapped was formed at the request of President Eisenhower as one of 41 People-to-People Program Committees. It has adopted the following three objectives:

1. Stimulate and facilitate by all available media a continuing exchange of information on technics, treatments, devices, and procedures in rehabilitating crippled children and adults and in employing the handicapped of all nations. Such interchanges should include stimulation of counterpart organizations and activities in and between the U. S. and other countries.
2. Through all available media, including direct correspondence and other personal means, project abroad an understanding of U. S. activities for the handicapped to show that they are a natural outgrowth of the spiritual and moral character of the American people and an evidence of our respect for human dignity.
3. Utilize and strengthen existing programs of U. S. organizations relative to their interest in international programs for the handicapped.

The keynote to action was sounded by Gen. Maas at the first meeting of the Committee for the Handicapped, when he told members:

"We have an opportunity to do something in the way of action that will demonstrate to the whole world the superior benefits of democracy, to show to the world that under democracy we care about people. Probably the greatest distinguishing characteristic between communism and democracy is the attitude toward people. Nowhere is the humanitarian attitude toward people better demonstrated than in what people do for their unfortunates, their handicapped, and our program in this country, of rehabilitation and the ultimate objective of rehabilitation —a suitable job for the man or woman who has been given vocational training—will certainly make a tremendous impression on the rest of the world, and certainly in the Asian and African world, where such large numbers of their people are physically handicapped, and where traditionally for centuries, nothing has been done for them."

The Committee for the Handicapped welcomes cooperation from all professional and volunteer workers in the fields of rehabilitation and employment of the handicapped, particularly those whose business or personal contacts make it possible for them to travel abroad.

on guard

Yes, she's never off duty in guarding family health. She balances the family diet, takes the children for their "shots," prods her husband to get his annual checkup. But what about *her* health?

Caring for herself is the greatest gift a woman can give her loved ones.

So don't delay – see your doctor about *your* checkup. It's *"living insurance"* against cancer.

AMERICAN CANCER SOCIETY

# What's New .....

### 120. Bath Chair Lift

Bath Chair Lift, according to the manufacturer, permits bedridden and wheel chair patients to lower themselves into the tub and emerge from the tub with ease. The lift fits any standard bathtub and is constructed of finest grade steel tubing. All parts are chrome plated or anodized. The seat covers are of porous vinyl plastic, tailored to fit and are easily installed by means of zippers. There are no electrical connections to the chair, an important safety factor. Dalton Manufacturing Co.

### 121. Booklet on Hypertension

*High Blood Pressure* (hypertension) is a 14 page booklet written by Edgar V. Allen, M.D., Senior Consultant in Medicine, Mayo Clinic, and President of the American Heart Association. Facts on hypertension are presented including the cause of hypertension, role of the arteries and arterioles, symptoms, treatment, and guides for the patient in regulating his own activity. Copies are available from the American Heart Association, 44 East 23rd Street, New York 10, N. Y., or from your local Heart Association.

**For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review*.

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### 122. Spring Pole

Polecat spring pole is an aid for newly ambulatory patients, and may be used as an exercise bar or as support for the limbs of patients in bed. The Polecat is a featherweight, telescoping column of 1½ inch anodized aluminum with an expansion spring in the top. It can be adjusted to any ceiling height up to 15 feet, and then just sprung in and out of place as required. Although Polecats take up no more floor space than a postage stamp, they will support up to 400 pounds, cannot be knocked over. Polecats, Inc.

(*continued on next page*)

# What's New .....

### 123. Wheel Chair Table

Newly designed wheel chair table incorporates almost unlimited adjustment feature that makes it ideal as a convenient work or recreation desk. Provides support for patients requiring almost complete arm support. Table adjusts easily to any position within a 9¾ inches raised limit to a 35° tilt.

Table fits any wheel chair by unique rubber covered spring clamps. All elevation and tilt adjustment knobs are at side permitting freedom of movement without interference from cumbersome permanent attachments. Top is form cut to fit around patient—large enough for use with respirator chest shells. Rehabilitation Products.

### 124. Color Plaster Bandages

"Specialist" Color-cast plaster bandages may be used throughout a cast or plaster splint or may be used for the final covering of any white cast. "Specialist" color-cast is available in flesh-tone, red, yellow, and blue and is packed one dozen bandages in a can, six cans in a case. Bandages are 3 inches and 4 inches in width and 3 yards in length. Johnson and Johnson.

### 125. Ripple Sole Shoes

Ripple Sole Shoes, hailed as "the greatest shoe discovery in 2,000 years,"* reduce walking shock up to 40 per cent, lengthen stride, and provide traction on wet, slippery surfaces. Developed and tested at the University of Southern California Performance Physiology Laboratories, the sole's revolutionary action propels the foot forward to make walking effortless. Excellent for those with prosthetic hips, for amputees, and for anyone who walks or stands a lot. Experimentation is being conducted on benefit to children who have cerebral palsy. Free catalog on men's, women's and children's styles available. Hack Shoe Co.

* *Reader's Digest*

## Coming Meetings

| | |
|---|---|
| December 3 - 6 | American Medical Association, Clinical Sessions, Commercial Museum, Philadelphia |
| December 18-21 | American Physical Society, Palo Alto, California |
| December 26-31 | American Association for Advancement of Science, Murat Temple, Indianapolis |

# *Classified* WANT-ADS

Physical therapist for REHABILITATION CENTER in industrial area. Good starting salary, regular increments, 40-hr. wk., 5 wk.-vac., S. S., paid hospitalization. Apply Christine K. Kline, P.T., Executive Director, 209 W. Woodland, Youngstown, Ohio.

WANTED: QUALIFIED physical therapist, female in office of busy orthopedist, Miami Beach. Fully equipped department for physical therapy and rehabilitation. Personal interview required. Write Mortimer D. Abrashkin, M.D., 1680 Meridian Avenue, Miami Beach, Florida.

IMMEDIATE OPENING: Physical therapist for recently established Phys. Med. and Rehab. Department under direction of a physiatrist. Good salary, 40-hour week, paid holidays and vacation. Variety of in- and outpatient cases treated. Apply Administrator, The Williamsport Hospital, Williamsport, Penn.

GRADUATES OF APPROVED SCHOOLS FOR PHYSICAL THERAPISTS. California has positions open in State Hospitals, the Veterans' Home and special schools for handicapped children. Require U. S. Citizenship and registration with California Medical Board. Liberal employee benefits and retirement plan. No experience required to start at $395; raise to $415 after six months; promotional opportunities to $530. Write State Personnel Board, Box 71, 801 Capitol Avenue, Sacramento, California.

WANTED IMMEDIATELY: Physical Therapist (Negro) for Keel School. Regular school under Board of Education. Teacher's pay and benefits. Should be able to teach elementary grades. Write to Mrs. Alma R. Booth, Principal, 227 Keel Avenue, Memphis, Tennessee.

WANTED: TWO STAFF PHYSICAL THERAPISTS, registered and/or members of the APTA for 350-bed fully accredited hospital. Located on beautiful Long Island Sound, one hour from New York City. Apply Personnel Department, Norwalk Hospital, Norwalk, Connecticut.

OPPORTUNITY for beginning staff and experienced physical therapist interested in career position with opportunities for advancement in field of Physical Rehabilitation, opportunity to participate in educational program if desired. Rehabilitation facilities include physiatrics supervision, speech and occupational therapy, and clinical psychology. Regular benefits and with increased privileges with longevity. Write to Medical Directors, 9145 South Ashland Ave., Chicago 20, Ill.

TWO registered physical therapists for STAFF positions in a new, rapidly expanding department in a 5,000-bed institution for the mentally retarded. New graduates acceptable. Range $387-$473; salary open. Excellent employee benefits. Sixty per cent cerebral palsy, 40 per cent orthopedic and other. Located in beautiful Rock River Valley. Contact: Superintendent, Dixon State School, Dixon, Ill.

PHYSICAL THERAPIST (Cerebral Palsy) Immediate openings in San Francisco Bay Area Health Department.
Salary range: $394-$484
Registration: Possession of the legal requirements for the practice of physical therapy in California as determined by the California Board of Medical Examiners.
Education: Graduation from a recognized school of physical therapy.
Experience: One year of supervised experience in physical therapy following graduation from a recognized school of physical therapy, preferably with some experience working with cerebral palsy children.
Apply: James C. Malcolm, M.D., M.P.H., Health Officer
Alameda County Health Department, City Hall
14th and Washington Streets, Oakland, California

WANTED: Physical therapist for staff of Department of Rehabilitation of Physical Medicine Department. Completely new facilities. Good salary; 40-hour week. Apply to Administrative Assistant, the Reading Hospital, Reading, Pennsylvania.

LAS VEGAS, NEVADA: Needs experienced P.T. to be in charge of new Easter Seal Treatment Center. Salary about $5,000. Liberal employment benefits offered. Apply Nevada Society for Crippled Children, 232 West 1st Street, Reno, Nevada.

PHYSICAL THERAPIST: Staff position. Opportunity for varied experience: 650-bed general hospital, near center of cultural and educational activities. Vacation, sick leave and social security benefits. Apply Personnel Director, Harper Hospital, Detroit 1, Michigan.

*(continued on next page)*

## *Classified* WANT-ADS

**RATES**

The rate per insertion is $1.00 per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

**ALL WANT-ADS MUST BE PAID FOR IN ADVANCE.** Make checks or money orders payable to the American Physical Therapy Association.

**Closing date for copy and cancellations is two months preceding publication date.**

Institutions or physical therapists who do not wish their identity known may arrange for Blind Ad Code No. All such want-ads must include the following which will be counted as 2 lines:

Address replies to ..... care of **The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

**IMPORTANT**

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

# *Classified* WANT-ADS

WANTED: Registered female physical therapist; 250-bed general hospital; 40-hour week, 6 paid holidays, 2 weeks' vacation annually. Social Security group participation Blue Cross-Blue Shield. Immediate opening —starting salary $400.00 per month with increase of $25.00 at the end of 6 months and 1 year. Address: Administrator, Union Hospital, Terre Haute, Indiana.

NEEDED IMMEDIATELY: CHIEF physical therapist and 1 STAFF therapist for well equipped and established department. Interesting and challenging positions. Excellent medical supervision. Both inpatient and outpatient treatment. Salary commensurate with experience. Liberal personnel policies. Write or phone Personnel Director, Butterworth Hospital, Grand Rapids 3, Michigan.

WANTED: Staff physical therapist, MALE or FEMALE. New department completely equipped. Salary open. Forty-hour week, vacation, sick leave. Wide variety of cases with both in- and outpatients treated. Apply: Personnel Office, St. John's Hospital, 1235 E. Cherokee, Springfield, Mo.

PHYSICAL THERAPIST: Female for staff position in Department of Physical Medicine; 526-bed general hospital with outpatient service. Forty-hr. week, paid vacation, sick leave, salary $303 to $372 per month. Apply Personnel Director, Saint Luke's Hospital, 11311 Shaker Blvd., Cleveland 4, Ohio.

WANTED: Full-time qualified physical therapist for staff position. Bed size 333. Starting salary $4,500 and upwards depending upon experience. Personal interview required. Write St. Mary's Hospital, Attention Administrator, 250 Cherry S.E., Grand Rapids, Michigan.

OPENING FOR PHYSICAL THERAPIST
IMMEDIATE OPENING for a qualified physical therapist in rehabilitation technics to teach and supervise visiting nurses in appropriate procedures; to instruct home bound patients, and to carry small case load. Experience in a Visiting Nurse Association desirable. Salary commensurate with experience. Liberal personnel policies. Write Anna C. Gring, Director Visiting Nurse Association, 87 Washington Avenue, Bridgeport, Conn.

IMMEDIATE PLACEMENT for physical therapist: 128-bed, fully accredited general hospital; 40-hour week, paid vacation and sick leave, laundry of uniforms, 7 paid holidays. Salary open. Apply: Director, Charlotte Hungerford Hospital, Torrington, Conn.

WANTED: QUALIFIED physical therapist to serve as Consultant on a Visiting Nurse Association Staff and to carry a small caseload. Prefer person with experience. Forty-hour week, 30-day vacation, Retirement Plan. Salary commensurate with experience and qualifications. Write Marie Winkler, Director, Visiting Nurse Association, 615 North Alabama Street, Indianapolis, Indiana.

QUALIFIED PHYSICAL THERAPIST. Immediate placement in an outpatient cerebral palsy training center. Personnel policies excellent. Liberal salary. Five-day week, 9 A.M. to 3:45 P.M. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, Walter Reed School, 901 Twenty-fourth Street, Newport News, Virginia.

QUALIFIED PHYSICAL THERAPISTS for modern Physical Medicine and Rehabilitation Department in 240-bed general hospital. Complete outpatient and inpatient service. Student program. Salary commensurate with experience; merit raises. Five-day work week with liberal paid vacation, holiday and sick leave benefits. Write Phys. Med. Dept., St. Johns Hospital, 403 Maria Avenue, St. Paul 6, Minnesota.

WANTED: PHYSICAL THERAPIST for outpatient Easter Seal Center in connection with 100-bed municipal hospital. Liberal salary with merit raises, paid vacation and other benefits. Apply J. Ray Beffel, 648 Christie St., Ottawa, Ill. Phone Ottawa 2000.

Immediate opening for STAFF PHYSICAL THERAPIST in new children's 30-bed multi-disability facility. Unit of a medical center which includes 500-bed hospital, medical and nursing schools and progressive research program. Increasing emphasis rehabilitation training. Unit is completely equipped and air conditioned, in attractive setting near University. Salary $3,456-$4,320. Apply Martha Norris, Coordinator, University of Virginia, Children's Rehabilitation Center, Charlottesville, Va.

## Proprioceptive Neuromuscular Facilitation Film

A 35 minute color film with sound is available to chapters and schools of physical therapy at a rental fee of $10.00. One copy of the film has been given to the Association by the California Rehabilitation Center. Requests from states east of the Mississippi should be directed to the American Physical Therapy Association, 1790 Broadway, New York 19, New York; rental is payable to the American Physical Therapy Association. Those west of the Mississippi should write to California Rehabilitation Center, 2600 Alameda, Vallejo, California; rental is payable to the California Rehabilitation Center. All requests should be submitted two weeks in advance of date of showing. Alternate dates are desirable since both copies may have prior bookings.

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**ULTRASOUND** — A new and proven therapy. Both the UT-4 portable ultrasonic unit and the UT-1 console offer simplified controls coupled with efficient power.

**DIATHERMY** — The MW-1 Microwave Unit brings the advantages of microwave diathermy right into your office. The MF-49 conventional short-wave model permits the use of contour applicator, induction cable, condenser pads, air-spaced and internal applicators.

**INFRARED THERAPY** — The Zoalite Z-30 provides sturdy clinical efficiency for the hospital or doctor. The Zoalite Z-12 has bedside portability.

**ULTRAVIOLET THERAPY** — The Ultra Lux Quartz Mercury Lamp (QA-250-N) offers high quality at moderate cost. The QA-450-N, Professional Special, is a higher intensity lamp on a counterbalanced stand.

**ELECTROSURGERY** — The Burdick SU-4 Blended Current Unit combines the cutting qualities of the vacuum tube current with the coagulating properties of the spark gap current.

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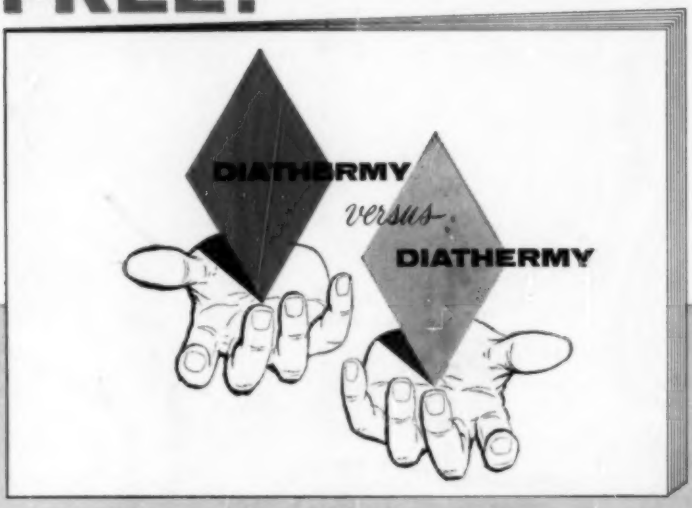


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